Chemical Week

July 3, 1954

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Now it's polyethylene in collapsible tubes; new firm girds for joust with metals. . . . p. 36

L'Air Liquide's Salbaing urges U. S. to cast off European engineering shackles . . . p. 44

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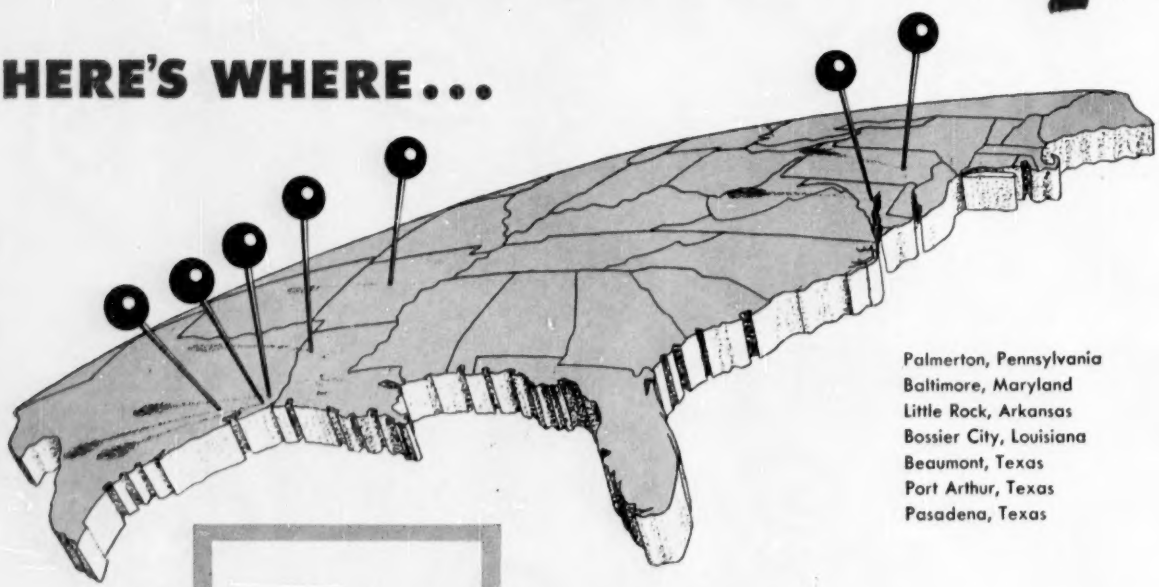

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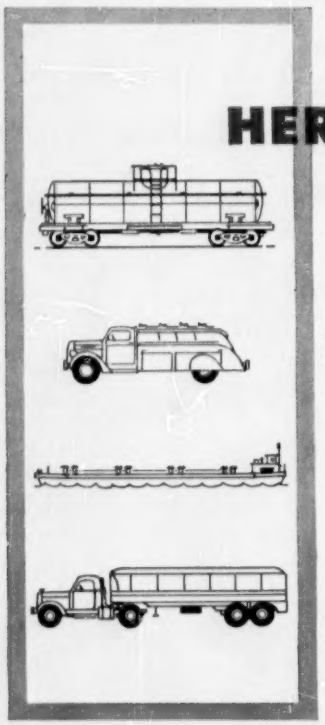

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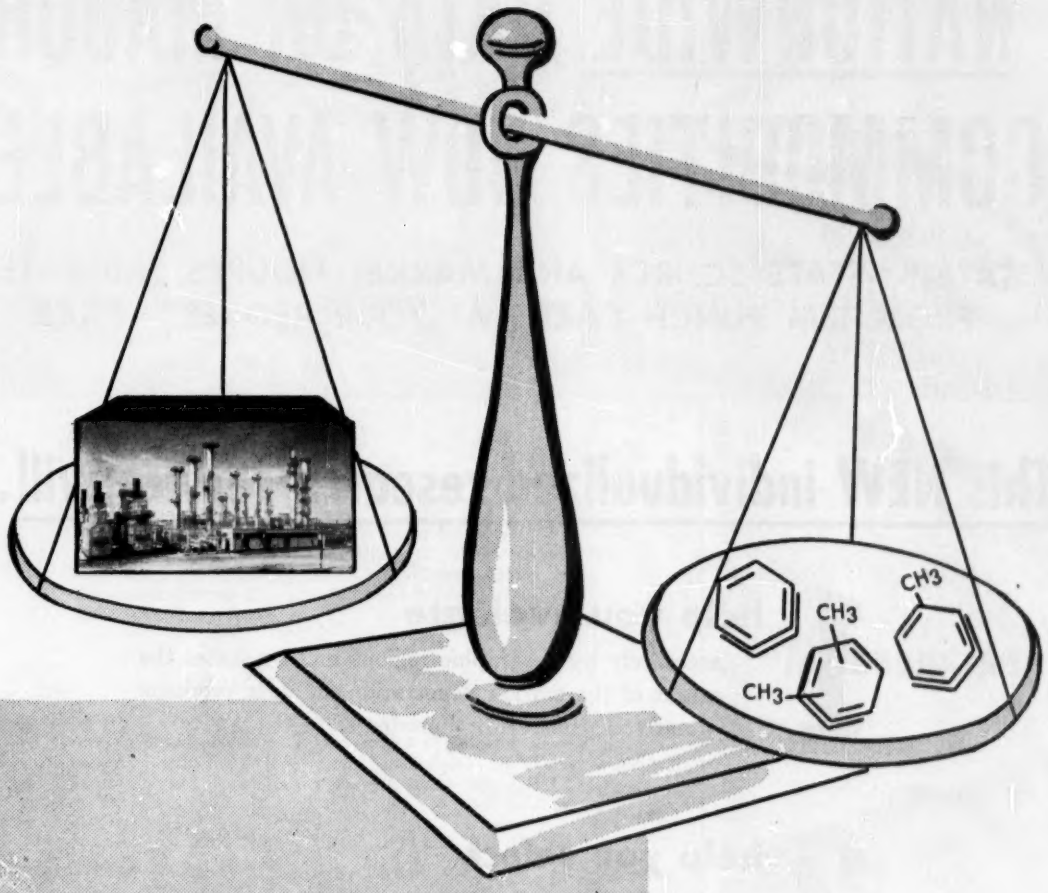

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Chemical Week

Volume 75 **July 3, 1954** Number 1

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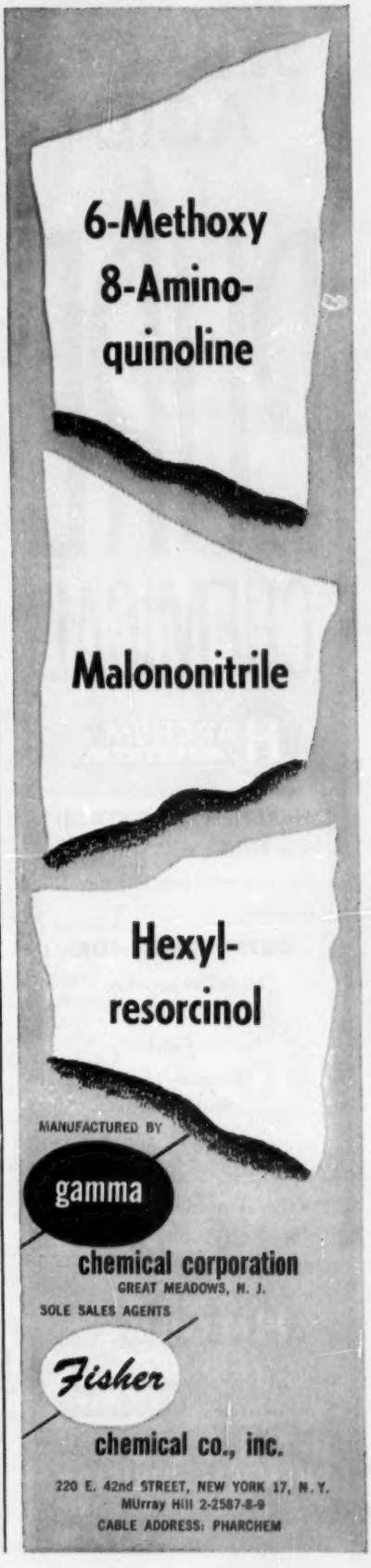

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OPINION . . . . . .

On the One Hand . . .

TO THE EDITOR: I find it distasteful to have to take the time to question the half-baked opinions published in your editorial (*June 19*).

Your well-phrased, though in my opinion poor, defense of the right of nonconformity, particularly as it relates to the case of J. Robert Oppenheimer, is so typical of thinkers of your caliber that it surely is no wonder that some of the poorly educated and nonintellectual individuals of this nation have qualms about leaving our future in your apparently unsteady hands.

Your editorial begins with the usual statement that you do not intend to pass judgment, "one way or another," on J. Robert Oppenheimer, a beginning that seems to me to be a defense should later developments prove you to be grossly in error. In spite of this beginning one could hardly read your statements in full without coming to the conclusion that you felt that the duly appointed board of inquiry comprised of " . . . thoughtful, intelligent men of unquestioned integrity—having all the facts and allegations" have done Oppenheimer and the nation irreparable damage.

As always, those who attempt to make a case against our present security standards, you have chosen one point in a massive report. This point of course is the rather unfortunate, I agree, wording of that portion relating to Oppenheimer's lack of enthusiasm for the "crash" program.

What of his obvious violation of known security regulations as late in his career as last December? The report shows that Oppenheimer, by his own admission, visited one Haakon Chevalier last December while in Paris.

But previous information obtained from Oppenheimer indicated that Chevalier during the war solicited classified information from Oppenheimer for the specific purpose of transmitting this highly secret data to so-called Russian scientists.

This is just one serious breach of security that was cited in the board's report that you conveniently overlooked, apparently.

Were not the consequences of "leaked" security information so serious, no thinking American would support the contention that men should be evaluated on our present security standards. Surely it is not necessary for me to take the time to elaborate on this point.

Granted also, we as a nation will not be able to drink of the intelligence of Oppenheimer as a result of the board's decision. But under the circumstance have you an alternate plan that considers the welfare of the *whole* nation?

JOSEPH T. CUMMINGS
Woodhaven, N.Y.

TO THE EDITOR: I am somewhat disturbed by your editorial (*June 19*) on Dr. J. Robert Oppenheimer. It seems to me that you have thereby joined other editors in the technical press who seem to be making a defense of a very small group of technically trained people, some of whom admittedly are pre-eminent in their field, but who . . . seem, for one reason or another, to have Communist backgrounds or Communist association backgrounds. . . .

Unfortunately, the result [is a] . . . generally accepted public opinion that scientific and technical men as a group are more and more to be feared as Communists and poor security risks. Actually, this is not the case, and I feel that every technical editor has a clear duty . . . to keep from associating himself with this situation. I am positive that the great majority of technical people do not defend Dr. J. Robert Oppenheimer, or others like him, regardless of scientific ability, and likewise I am positive that the great majority of technical people feel that there are plenty of others who can take his place who do not have a questionable background.

I deplore the constant reference of the press in statements to the effect that incidents like the Oppenheimer one will deter other capable scientists from entering government atomic energy fields. . . . If the facts surrounding cases such as Oppenheimer were clearly presented in the light of the dangers that confront this country as related to the Communist conspiracy, the great majority of technical men, both inside the government and outside the government, would feel that justice had been done and would have no fear in continuing their government work, or in joining the government. . . .

The above letter was unsigned. CW does not ordinarily deign to publish anonymous letters, but because the

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

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OPINION . . . . . .

writer made no point of his anonymity we charitably admit that his omission of a signature may possibly have been inadvertent rather than deliberate.—ED.

. . . And on the Other

TO THE EDITOR: Three loud cheers, and a hip,hip, hooray! Your editorial, "Conformity No Criterion," . . . should be inscribed . . . on tablets of gold, and made compulsory reading for every member of our Congress, every offficial of our government, and every "molder of public opinion."

KARL M. HERSTEIN
President
Herstein Laboratories, Inc.
New York

TO THE EDITOR: I should like to take this opportunity to comment on how much I liked your comments under the heading "Conformity No Criterion" (*June 19*).

It is my belief that people should have the courage of their convictions and should be free to express those convictions, whether wrong or right.

ALFRED R. GLOBUS
President
United International Research, Inc.
Long Island City, N.Y.

DATES AHEAD

Plant Maintenance Show, Pan Pacific Auditorium, Los Angeles, July 13-15.

American Pharmaceutical Assn., annual meeting, Statler hotel, Boston, Aug. 22-27.

World Congress on Surface Active Agents, Sorbonne, Paris, France, Aug. 30-Sept. 3.

International Congress of Industrial Chemistry, Brussels, Belgium, Sept. 11-19.

American Chemical Society, national meeting, Statler hotel, New York, Sept. 12-17.

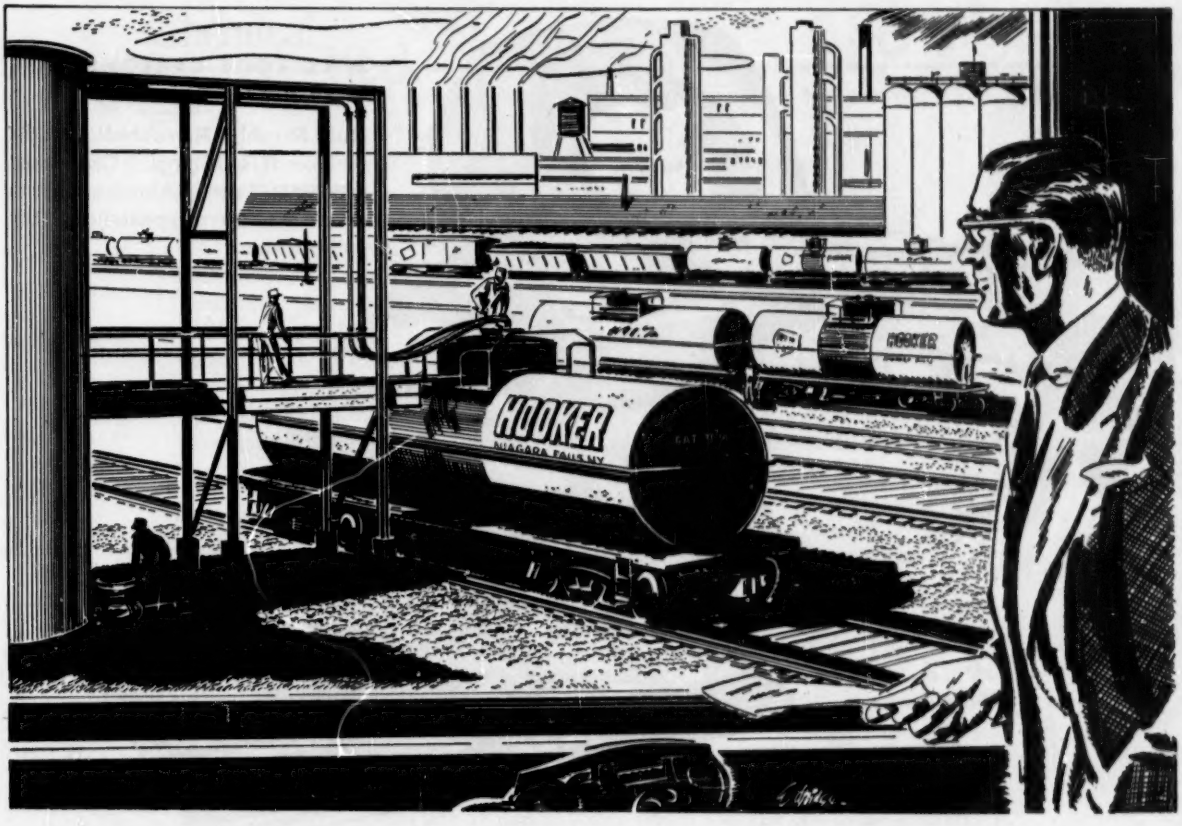
Federal Wholesale Druggists' Assn., annual convention, Greenbrier hotel, White Sulphur Springs, W.Va., Sept. 19-22.

Drug Chemical and Allied Trades Section, N.Y. Board of Trade, annual meeting, Pocono Manor Inn, Pocono Manor, Pa. Sept. 23-25.

American Oil Chemists' Society, fall meeting, Radisson hotel, Minneapolis, Minn., Oct. 11-13.

National Chemical Exposition, Chicago Coliseum, Chicago, Oct. 12-15.

Assn. of Consulting Chemists and Chemical Engineers, annual meeting and symposium, Belmont Plaza hotel, New York, Oct. 26.



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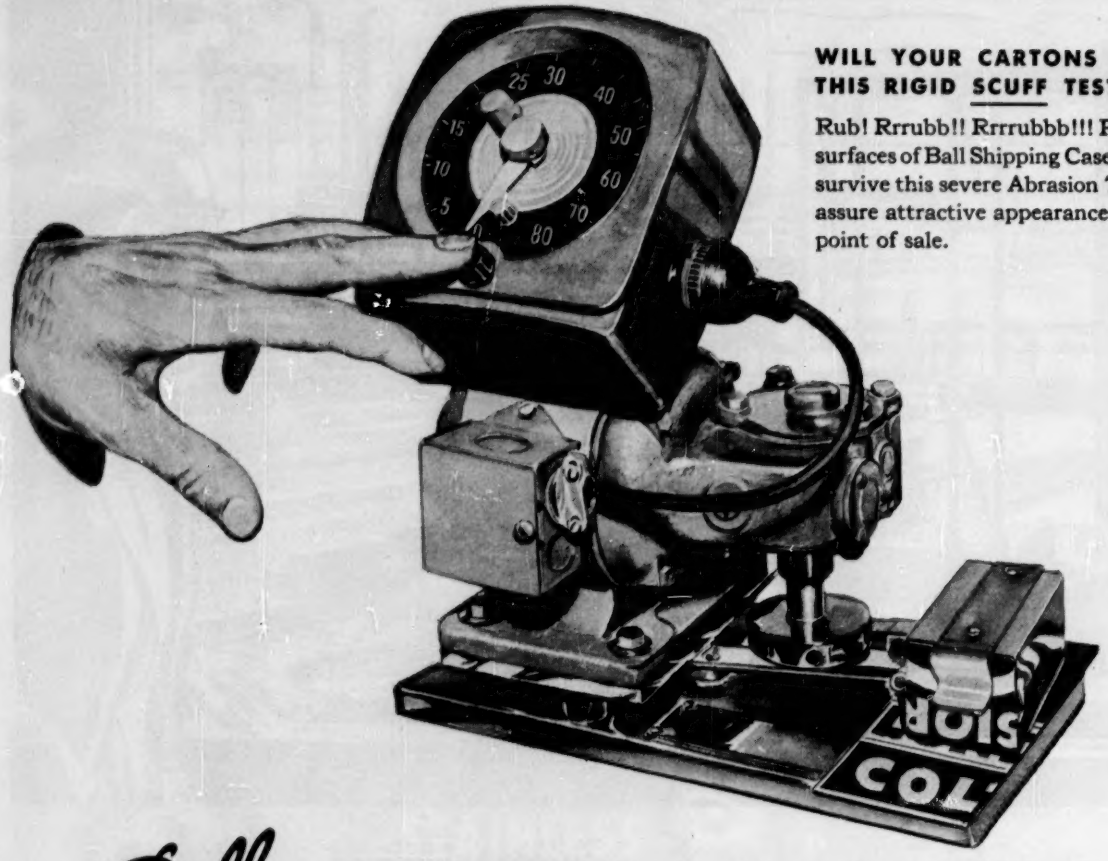

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Chemical Week
BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

NEWSLETTER

Don't be surpised if Hercules Powder decides to make methanol, formaldehyde and pentaerythritol as well as anhydrous ammonia at its Louisiana, Mo., facilities it leased a few weeks ago from the government (CW, April 24, p. 18). One ammonia line is already operating, and the other two will be brought in within the next few weeks.

But Hercules may use one of the lines to produce methanol, which in turn can be oxidized to formaldehyde, major raw material for pentaerythritol. Hercules already makes the latter at Mansfield, Mass., would use the same process at Missouri Ammonia Works.

Hercules sees advantages in producing the chemical there: the plant is right on the Mississippi River, only 92 miles from St. Louis and 270 miles from Chicago, so the output could be transported cheaply by barge to Midwestern markets.

•

Solvay Process Division's new hydrogen peroxide plant will be located at Syracuse, N.Y. This is the plant (CW, May 15, p. 52) that mark's Allied Chemical's entry into the field with a new, nonelectrolytic peroxide process.

•

Electric Bond & Share Co., has $30 million looking for a place to roost, and a good part of it will likely end up in the chemical industries. The chemical, petroleum and glass industries are top candidates for investment, says President George Walker, and the likeliest chemical segments are petrochemicals and plastics.

•

Powder dispensing is the latest thing in aerosols. Aeropak, Inc. (Chicago) has licked the valve problem, has come up with a device for spraying 300-400 mesh powders such as insecticides, deodorant, foot and bath powders, and decorative metallic sprays. This can is simply shaken before use to disperse the contents, and the valve is opened to provide bursts of powder spray lasting as long as 30 seconds.

The new development opens aerosol packaging to many products usable only—or preferably—as powders. One intriguing medical possibility: application of sterile powders.

Now being tackled is the handling of coarser particles.

•

Ready—or being readied—for market are some newsworthy new chemical formulations and applications:

- A Midwestern firm will introduce, probably in the fall, a novel type of paint pigment that works with both latex-base and oil-base products, obviating the need of stocking different types for each.
- Of seasonal interest are a plastic diving board and plastic water skis. Reichhold Chemicals makes the resin for the former, Aqua Spray Ski Co. (San Francisco) fabricates the latter.
- Also seasonal, for outdoor chefs, is a new aerosol product for starting fires. Bostwick Laboratories' (Bridgeport) Fire-Starter is simply sprayed on charcoal, briquettes or wood before igniting.
- Silicone treatment of asbestos shingles, to prevent streaking by

rain-borne dirt, is a new wrinkle by Keasbey & Mattison (Ambler, Pa.).

•

• "Do-it yourself"-ers can now buy a tub caulk (Miracle Adhesives Corp., New York) in blue, green, pink or tan to harmonize with bathroom fixtures and tile.

•

New enterprises as well as new materials add a fillip to the week's significant news:

• With fanfare and 5,000 guests, Rayonier, Inc., formerly opened its 300 tons/day chemical pulp mill at Jesup, Ga. The new plant brings Rayonier's chemical cellulose capacity up to 572,000 tons/year—half of total U. S. capacity.

• Work has now started on American Smelting & Refining's $20-million program to exploit the asbestos ore underlying Black Lake, Que. It involves draining the lake, diverting a river, building dams and spillways to provide for open-pit mining and subsequent processing.

• Humble Oil & Refining has discovered off-shore sulfur on government lands near Grand Isle, La. The firm will explore and evaluate it for the U. S. Dept. of the Interior.

•

Elsewhere in the industry, activity is also the keynote as:

•Du Pont, encouraged by estimates of its market researchers, decided to raise its stake in Freon-22 monochlorodifluoromethane, used as an intermediate in the manufacture of Teflon fluorocarbon resin as well as a refrigerant and aerosol propellant. It will build a new plant at its present site in Louisville (Ky.). Capacity, though not pinpointed, promises to be hefty. Construction, scheduled to start this summer, is expected to be completed by the fall of next year.

• Carbide and Carbon has just brought in a new plant for making ethyl and methyl acrylates. Like Du Pont, Carbide refuses to discuss capacity. But also like Du Pont, it states the new unit represents a substantial increase in present capacity.

• Arthur D. Little, Inc., after taking a good look at the industrial potential of the West Coast acquired the research and development laboratories of the Merrill Co. (San Francisco). Merrill is a metallurgical organization, has conducted research on the recovery of metals by precipitation, is currently doing some classified work for the Atomic Energy Commission. By setting up shop in San Francisco, ADL figures it's in a fine position to market its research and product development work to the growing West Coast industry.

•

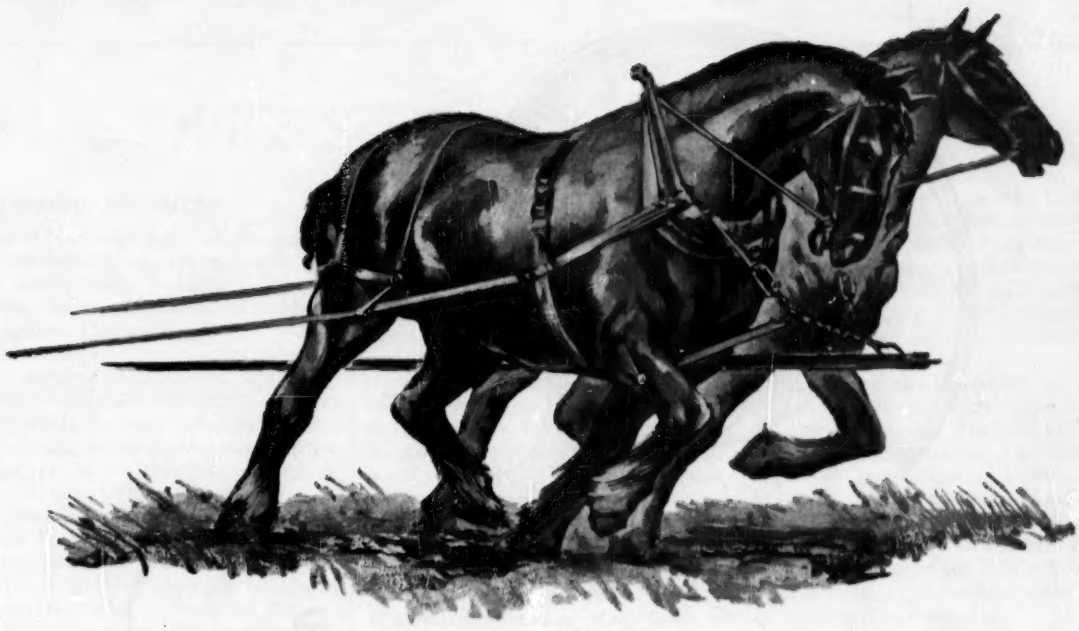
Olin Industries, lately merged with Mathieson, has been turned down on a bid for a plant site near Morganfield, Ky. The land's a 1,500-acre tract, a portion of the mothballed Camp Breckenridge reservation, still held by the government. But Marion Greenwell, mayor of Morganfield, eager to get Olin into the town, has ordered a city attorney to prepare a suit. He's going to try to get the government to either use the land or sell it to someone who will.

•

But while Olin can't get the land it wants, Mathieson has more than it needs in Houston. It has leased the 160 acres adjoining its fertilizer plant at Pasadena to the Agriculture Dept. of the University of Houston for $1/year, which will use it as a demonstration farm and ranch; any income from it will be available for scholarships.

. . . The Editors

SODIUM metallic



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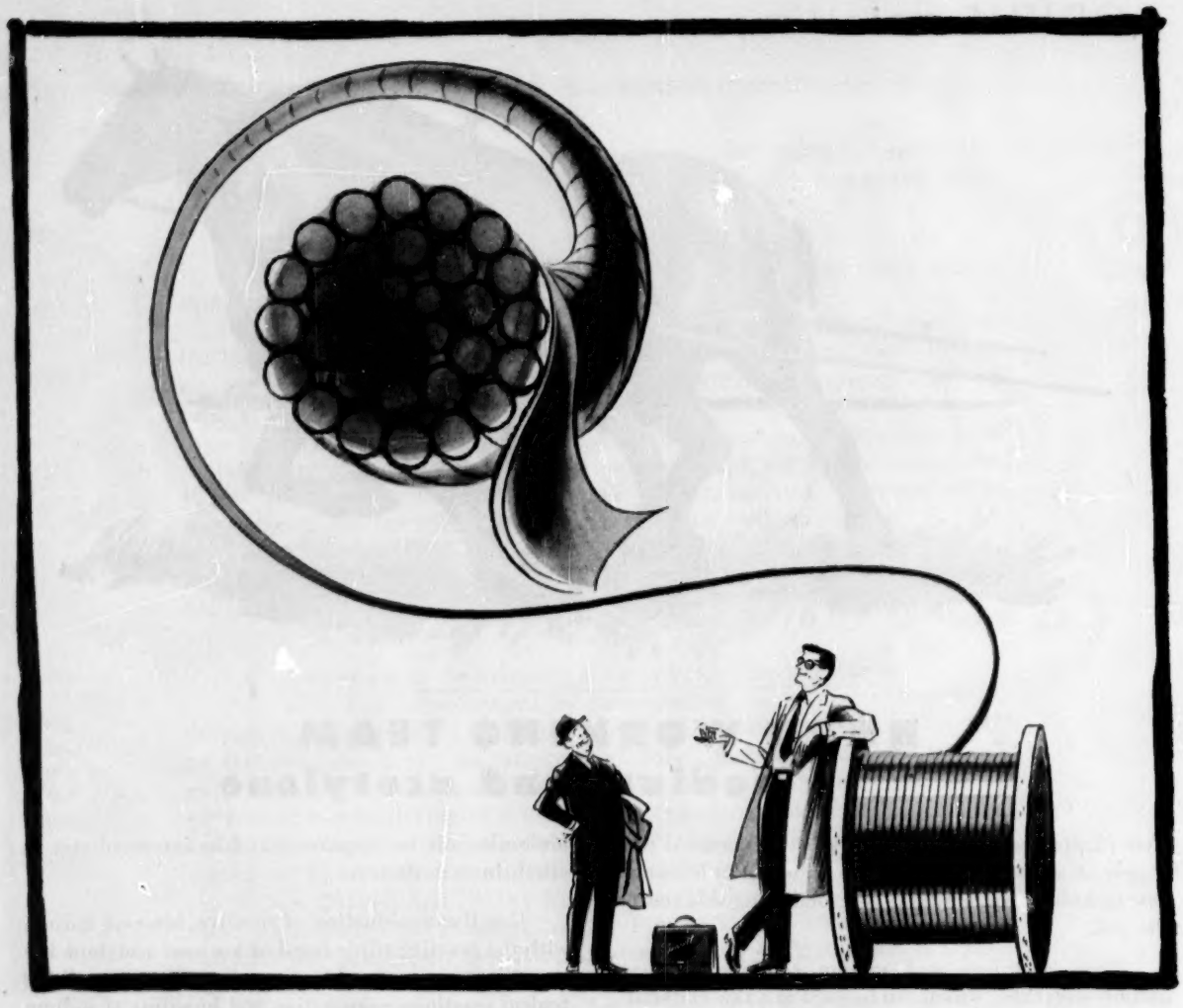

How "Doc Barrett" helped Hatfield produce the real McCoy

Few manufacturers are faced with such complex and demanding specifications and production problems as the maker of electric wire. Wire comes in all gauges and in all colors. Wire coverings must combine high insulation value, flexibility and toughness. It takes a lot of patience, experience and knowledge of materials to produce wire coverings that are the real McCoy.

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BUSINESS & INDUSTRY . . .

Speedy Defense

Talent for being quick on the draw—in self-defense when it comes to tariffs and customs legislation—is manifesting itself in the chemical industry, it appears this week.

Current capitol crisis for the industry: the customs simplification bill introduced with Administration backing last month by Rep. John Byrnes (R., Wis.), and which rapidly came up for hearings before the House Ways & Means Committee.

This bill—purpose of which is to clear broader pathways through the dense jungle of U.S. customs regulations—is no short, simple document itself. But after a study of the bill and a quick canvass of members, the two leading industry organizations hastily prepared a statement that was presented to the committee late last week by Du Pont's Samuel Lenher, first vice-president of the Synthetic Organic Chemical Manufacturers Assn. Cosponsoring the statement: the Manufacturing Chemists Assn.

May Stall Enactment: With their vehement criticism, MCA and SOCMA may keep the Byrnes bill from being enacted—at least in its present form. Administration hopes for rushing the bill through Congress were based on the assumption that it wouldn't be controversial and wouldn't require long hearings. The bill has become controversial now, and may be held over until 1955.

Principal objections cited:

- The bill would give the Executive branch too much authority in simplifying the tariff structure, and Congress wouldn't have enough time to study the proposed changes.
- Consolidation of tariff rates as suggested in this bill could lead to lower duty on some chemical imports and might undercut the U.S. selling price method of evaluating certain organic chemical imports.
- Industry should be allowed to present its views on proposed tariff rate changes before the Tariff Commission completes its studies—not afterward, as the bill seems to say.
- The bill doesn't guarantee that the President will consult Congress before putting into effect tariff schedules proposed by the commission.
- The bill would weaken the antidumping act by setting a 60-day limit (instead of six months) for retroactive imposition of dumping penalties.

Chemical management is also watching two other developments in customs and tariffs. The Bureau of Customs will consider written statements—if they're received by July 12—on its proposed changes in procedures under the Antidumping Act; and the House of Representatives is getting a second look at the bill to extend the Reciprocal Trade Act for one year. That bill—with minor changes—was passed by 71 to 3 vote in the Senate late last week.

More Gas More Places

Chemical companies that look at natural gas as fuel or raw material are finding the geographic pattern of availability being changed by actions in Washington.

The Federal Power Commission has given the go-ahead to Pacific Northwest Pipeline Corp. (Houston, Tex.)

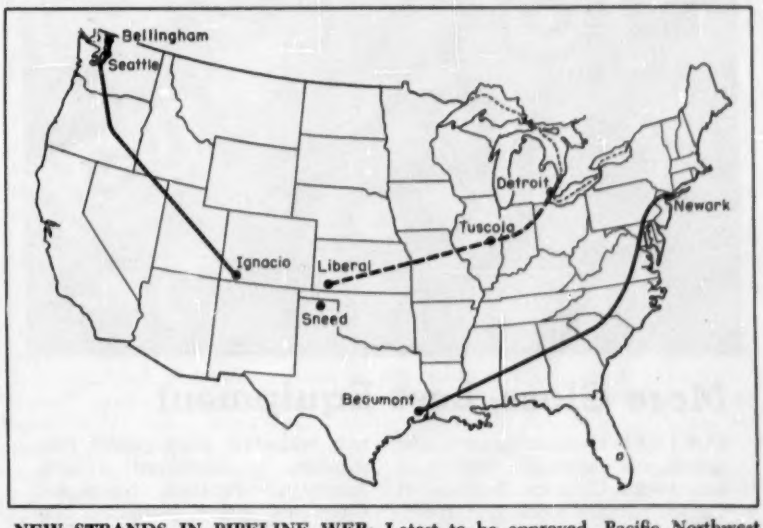
And it's now considering an application from American Louisiana Pipeline Co. for a gas line running from Louisiana to Detroit and northwest Ohio.

The rich markets these areas represent—both in possible petrochemical operations and as a fuel market—have naturally made these pipelines a subject of controversy. American Louisiana's application has been contested by Panhandle Eastern Oil, a supplier to the Detroit area, which claims that American Louisiana doesn't have a 20-year gas supply. FPC requires such a supply before granting construction permits.

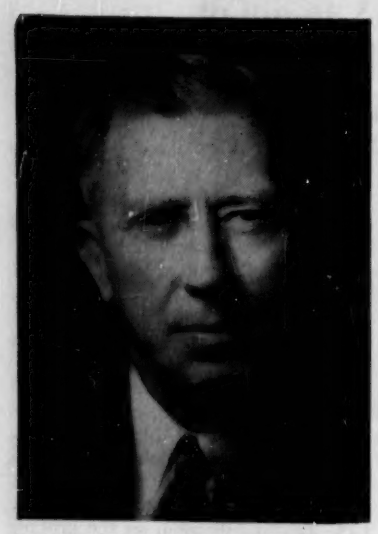
The commission's decision on the Pacific Northwest case apparently has not quite ended this controversy. Westcoast Transmission Co., which hoped to supply the area with gas from Canada, has decided to appeal. FPC made its decision on the ground that, in the absence of a government agreement between the U.S. and Canada, there was no complete assurance of continued gas supplies.

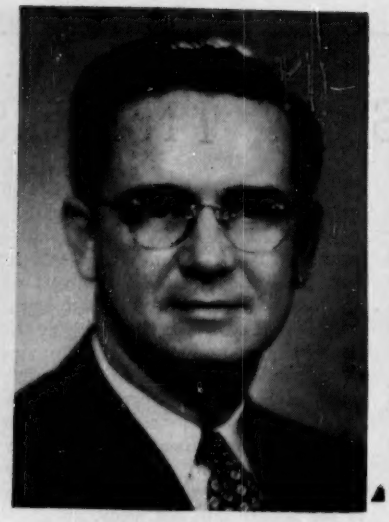
All-in-all, the FPC has approved over 3,600 miles of line with a value of over $300 million in the first half of 1954. Now pending before it are applications involving some 9,775 miles of pipeline. Total cost of such projects: $628 million.

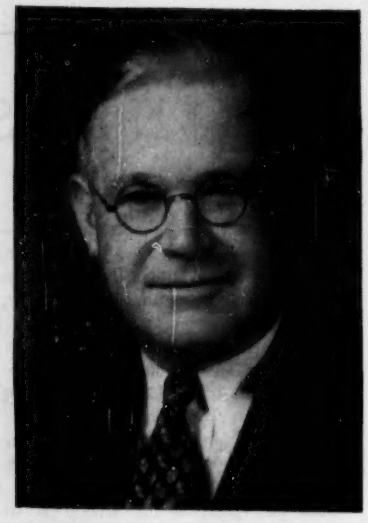
Such activity in gas line construction is overshadowed by that in pipelines for crude oil and oil products. Figures collected by the Committee for the Pipelines, a private agency in Washington, show that projects slated for completion this year add up to about 9,665 miles in length, over $500 million in cost.



NEW STRANDS IN PIPELINE WEB: Latest to be approved, Pacific Northwest Pipeline Corp's 1,466-mile natural gas line to Seattle and American Pipeline Corp.'s 1,910-mile oil line to Newark; proposed, additional loops and spurs on Panhandle Eastern Pipe Line Corp.'s 1,250-mile gas line to Detroit via Tuscola.







POLICY ON MANAGEMENT TRAINING, agree Alcan's J. B. White, Du Pont's Kline, Monsanto's Curtis, and Bois Mc Cay's . . .

Woodsmen No Longer

Seizing as its motif the theme, "Molecules to Management," last week's three-day meeting of the Chemical Institute of Canada turned up some solid U.S.-Canadian unanimity of thinking. The consensus: no chemical company today can depend on haphazard methods of management training. Whether it's big, whether it's small, no company can ignore the necessity of developing the potentiality of all possible candidates for executive positions.

That's the only way the industry—on both sides of the border—can cope with rapid expansion, and keep on tap an adequate supply of its scarcest raw material—top-grade managers.

"Personnel directors used to select new executives," said Monsanto's Francis Curtis, "like woodsmen chopping trees—walking around tagging likely prospects." But the dangers of such a hit-or-miss system are extreme, he points out, and most chemical companies just can't afford the risk involved. Result: most firms have evolved (or are in the process of evolving) a scientific plan for management development—fully as detailed, and equally as carefully planned as any of its production schemes.

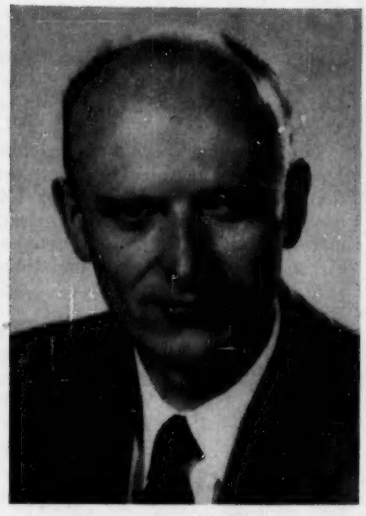
Foundation of any system, maintains Alcan's J. B. White, is a company inventory of positions and available replacements showing all the gaps and inadequacies. But the next step is even more important. You have to determine (1) who's to be trained, and (2) who's to train them.

That very moment, states the University of Toronto's Dean K. F. Tupper, is where most companies falter. College professors, outside consultants aren't the sole answer. Why? Because those who are concerned with the immediate system are far and away the best qualified to counsel potential successors. Their own aptitude (or inaptitude) isn't a qualifying limitation; inept people are often the best trainers of executive-trainees. But many companies haven't realized it, have failed to maintain a reserve of managerial replacements simply because they overlooked their best source of indoctrination—training by misexample.

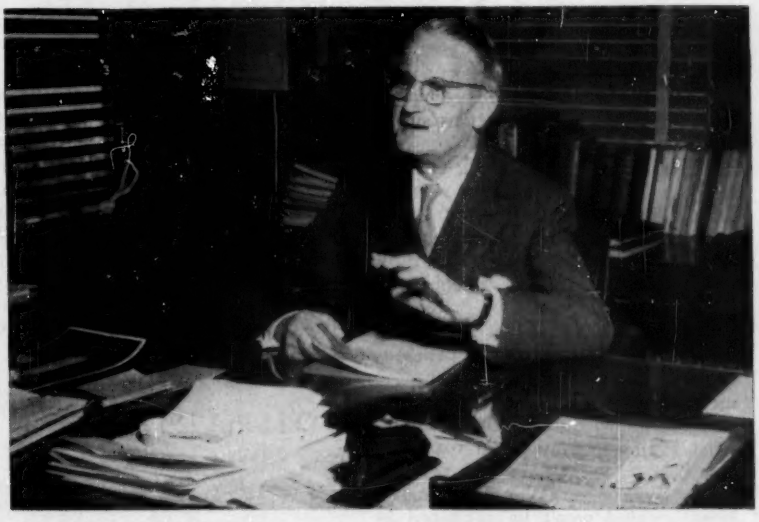
Core of the Monsanto system, asserts Curtis, is on-the-job coaching backed up by job rotation (to a limited extent), committee operational teams, company sponsorship of technical association attendance, and periodic

More Glass, Less Equipment

FORTY-FIVE manufacturers and distributors presented displays at last week's Chemical Institute of Canada's annual meeting at Toronto. Among those represented: Atlas Co. of Canada (with a model of its new surfactant plant, under construction at Brandford), North American Cyanamid, Naugatuck Chemicals, Baker Platinum, National Carbon, and Merck. Some 1,200 persons visited the exhibits.



. . . Mc Cay, is radically changing.



GOLDSCHMIDT: Major assets in East Germany . . . socialized by Russians.

evaluations. But more important is the fact that Monsanto's system of executive training isn't rigid, can be suited to the individual's time and circumstances. And the top executives are openly enthusiastic about the plan.

Well-coordinated communications is a prime requisite for successful management training, points out Bois Mc Cay's J. T. Mc Cay. "In the chemical industry, human relations is everybody's business; it should be the aim of any company to train its administrative candidates "to get along with judgment instead of measurements." But it isn't ever possible, if those in charge don't cooperate—won't subject their own power of communication to the same scrutiny they preserve for those they're trying to develop.

"There's no substitute for practical experience in turning out good management replacements," concludes Du Pont's C. A. Kline, Jr. Parceling out responsibility isn't always the easiest thing to do; you have to expect a certain percentage of failures, write off your losses. Most chemical companies today try to protect themselves by marking out clearly defined boundaries of responsibility, then spur a man to effort by periodic checks on accomplishment.

But in the main, although there's considerable thought expended on the subject of management training and although every company has its own policy to make it work, no one has come up with a final answer to the problem. Every company is working on it, convinced that it's a vital factor in industrial advancement, may prove to be a deciding issue in the immediate years ahead.

Faithful to an Ideal

There's no substitute for dogged determination—but the realistic chemical executive in Germany today realizes that in basic research, he is 10 years behind U.S. industry. Damaged plants, dismantled facilities can be replaced, says Theo Goldschmidt, world-renowned emulsifier producer, but the only sure way for Germans to get back into the world market is to tie in with U.S.-owned firms—share know-how, pool resources.

In the case of the Theo Goldschmidt A.G., Chemische Fabriken, Essen, that's the basic reason behind the recent formation (with Atlas Powder Co., Wilmington) of a jointly owned company to distribute a "full line" of emulsifiers in Europe *(CW, May 15, p. 16)*. Production at the Goldschmidt plants at Essen is running ahead of the company's total German output in 1939 in both dollars and volume, it's true, but capital is short, the price of raw materials is high, electricity is still dear.

To make the problem of competition even rougher, Goldschmidt has been permitted to retain only the debts—not the assets—of its facilities in the Eastern Zone of Germany. In rapid succession the Russians dismantled, socialized, and then decided to expand caustic, chlorine, soda ash units. Result: what might have constituted a major lift to company earnings in the years directly following the war have proved a far greater handicap than an asset to Goldschmidt management.

Reads Like a Fable: That the company has been able to come this far alone, however, is a tribute to its present president, Theo Goldschmidt. Faithful to two ideals—that research is a necessity and that friendship breeds strength—Goldschmidt (now 70) has had a hand in steering his company through the ruins of two world wars, past obstacles formidable enough to daunt many a less-determined industrialist. Close beside the Krupp munitions plants in Essen, Goldschmidt emulsifier-producing units were reduced to mere rubble by Allied air attack. In one memorable winter, in part to warm workmen clearing up the debris, Goldschmidt improvised by renting two locomotives, which pulled up on a siding to produce the only power and heat available for the entire operation.

His company's losses (as is the case with most German producers) can't be spelled out in terms of production facilities alone, Goldschmidt avers. Overseas holdings (which in Goldschmidt's case amounted to more than half of the company's total assets before World War I) must be written off as dead loss; markets must be carved out all over again. In his own case, overseas shipment is today close to 12% (up from 10% in 1953) of total output, but relative importance of foreign trade to the company business is greater than the figures indicate.

Further, it isn't easy to shave production costs very much. Chemists and chemical engineers are still at a premium in Germany. "Besides missing an entire generation, Germany today is facing a problem with its

recent chemical graduates," says Goldschmidt. "They quite naturally want to get out of the country, seek employment elsewhere where wages are higher, working conditions superior."

But most important of all, German firms can't yet maintain large research laboratories without imposing an intolerable burden on funds required for expansion. Goldschmidt itself hadn't much chance of catching up on Atlas' development of emulsifiers from sorbitol, decided that rather than risk competition (and the penalties it might impose) the most reasonable method of resolving the problem was to trade knowledge, jointly distribute what each company could manufacture best.

For the nonce, Goldschmidt maintains, sorbitol won't be produced in Germany—but there's no doubt that the idea is being considered by both partners as well as by others.

Encouraged by its Atlas partnership, Goldschmidt would like to undertake other joint ventures (in the field of disinfectants, for example) when the opportunity presents itself.

"From our position," concludes Theo Goldschmidt, "friendly and fruitful relationships with our international competitors is the road back to prosperity."

EXPANSION . . .

Nitric Acid: Expenditures of over $1.6 million will be made by Spencer Chemical Co. to diversify its product line. The bulk of the increased facilities will be put in operation at Henderson, Nev., site of the company's $5-million investment in ammonia facilities. First on the line for production: nitric acid.

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Pulp: The Ketchikan Pulp Co., Ketchikan, Alaska, has started round-the-clock operations at its $52.5-million pulp plant at Ward Cove. Anticipated rate of production: over 100,000 tons/year of pulp.

•

Film: Production of Du Pont's mylar transparent film will be shifted this summer from Buffalo to the new $10-million plant in Circleville, O. Mylar was developed at Buffalo, produced there on pilot-plant scale.

•

Pulp: Plans to build a $30-million pulp mill in the Edson, Alberta, area have been revealed by the Northwest Pulp and Power Co., a subsidiary of North Canadian Oils, Ltd., Calgary, Alberta. Preliminary construction plans call for an initial unit with a capacity of 300 tons/day of bleached sulfate.

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Newsprint: Expansion at Southland Paper Mills, Inc., Lufkin, Tex., to include installation of a third newsprint machine now seems a virtual certainty. Contemplated additional capacity: 70,000 tons/year—bringing Southland's total capacity up to 200,000 tons annually. The new facilities will require an additional 80,000 cords of pulpwood—mainly to be purchased within a 75-mile radius of Lufkin.

COMPANIES. . . .

Food Machinery & Chemical Corp.'s Westvaco Div. has taken an option on the seven mining claims comprising the Rundberg uranium properties in Lander County, Nev. Late reports from the Atomic Energy Commission state that the area contains the richest samples of ore yet discovered in the district—assayed at 6% uranium oxide, well above the minimum for commercial-grade ore.

•

New Jersey Zinc Co. has finalized agreements with four Canadian uranium firms under terms of which it may acquire majority control. Firms involved: Big Game Mines, Ltd., Gui-Por Uranium Mines & Metals, Ltd., Moon Lake Uranium Mines, Ltd., and Calder-Bousquet Gold Mines, Ltd.

For the next year or two, New Jersey Zinc plans to carry on exploration work (in the Blind River District, north of Lake Huron) to define more exactly the uranium potential of the mineral resources found there.

•

American Cyanamid Co. has surrendered more than $75,000 by failing to build its contemplated chemical plant near Carbo, Va. Deeds registered in the Russell County clerk's office reveal that by allowing its options to lapse, American Cyanamid forfeits one-half its original purchase price of $166,000 to Clinchfield Coal Corp., from whom it bought the deeds.

•

Some recent company incorporations:

- American Chemical Corp., has registered with the secretary of state's office, Dover, Del., with authorized capital of $100,000.
- Plastic Service, Inc. has been formed (also in Delaware) with authorized capital of $100,000.

Facing Fluorine Decision

WHETHER Chicago becomes the largest city fluoridating its municipal water supply depends on whether Mayor Martin Kennelly this week signs or vetoes the bill passed by the city council (by 38 to 7 vote) instructing the city water department to start fluoridation next Jan. 1. At present water use rate, Chicago will need either 7.3 million lbs./year of sodium fluoride or 5.1 million lbs./year of sodium silicofluoride. Estimated annual cost for first five years: $616,000.

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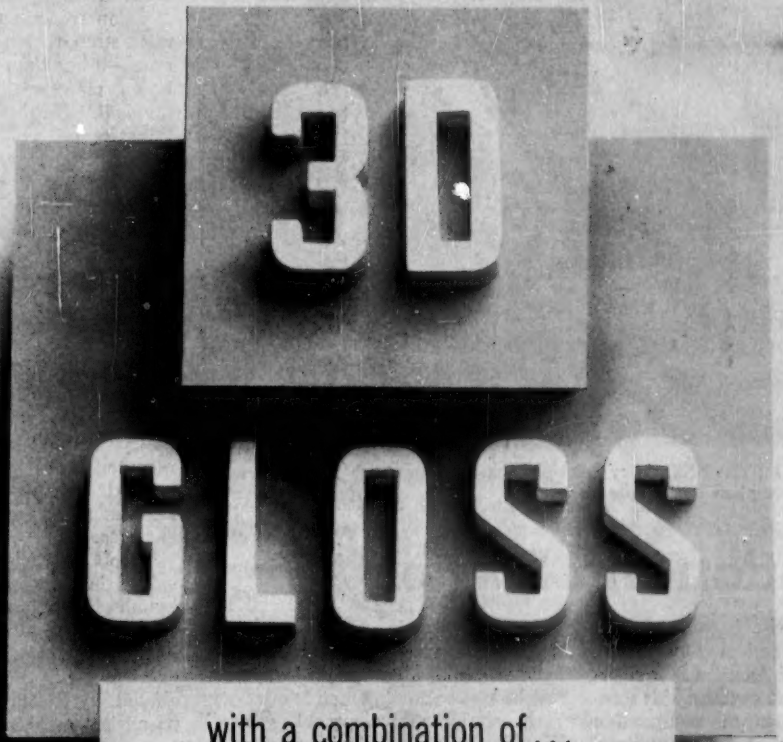

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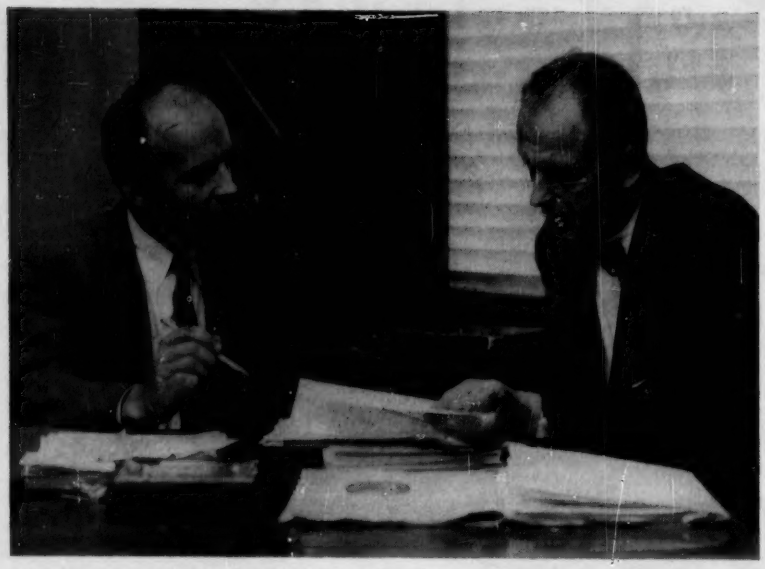

KIXMILLER AND STEVENS: They pilot-plant a new approach in management development to strengthen the middle echelon.

Operation Big Switch

As its newest twist in management training, the Chemical Division of Celanese Corp. of America is inaugurating a series of job switches this summer between men of comparable positions in different branch offices. Purpose: to build strength in middle management; to increase mutual understanding of staff functions in New York and the work of district offices.

The first switch (involves sales managers) brings Raymond Werner, Chicago district manager, to New York, while Norman Baker, product manager for solvents in New York, goes to Chicago to take over Werner's job. In the next move (due this month) Elmer Elbin, another district manager, will arrive in New York, and William Goodwine, manager for plasticizer products, will replace him temporarily in Houston. In the final switch for this year, Thomas Davis, who handles intermediates in New York, will run the San Francisco office during August, while Harry Snell, the district manager, is substituting for Davis in New York.

Management Philosophy: "This switching of the Celanese management team," declares Richard KixMiller, general manager of the Chemical Division, "ties in with the whole philosophy that a man can do his job better, as part of an organization, if he knows what the other fellow's up against. The company also gains from the new ideas and new approach that each man brings to the unfamiliar job."

Moreover, the job-switching plan to strengthen management won't be confined to the chemical sales force. "We're now switching men in our New York product development group," KixMiller points out, "with employees working on customers' problems in our Summit, N.J., application laboratory."

Production men are also eligible under Celanese's transfer plan. Superintendents in charge of different units trade jobs, and so do their assistants. The whole move can involve as many as half a dozen people at a time—as happened last year at Pampa, Tex.

Tough to Organize: Though the idea of job-trading sounds simple, planning the job interchanges can prove difficult, requires careful scheduling. For one thing, when moves are made from one district to another, the men involved must often travel great distances, find temporary living quarters. Complicating matters: when the moves are made in the summer they must be coordinated carefully with vacation periods.

Moreover, it's important that a man stay on the new job long enough to benefit from his experience. How long it is depends on his individual capabilities and previous background. But as a practical matter, it can't be much less than four weeks—and Celanese management prefers that it be longer. However, some jobs have limiting factors. District managers, for example, can't be kept away from their regular customers too long. And since they usually cover their entire districts once every six weeks, the company hesitates to keep them away for longer than one of these cycles. Upshot: a four- to six-week training period.

Celanese doesn't expect its management-strengthening program will cost much—other than increased transportation charges, expenses should be nominal. "The biggest cost in switching sales and product managers," says John Stevens, general sales manager for chemicals, "will come if we lose an order." This is the paramount danger and principal reason why many companies won't try job-switching, but Celanese feels it's worth the gamble.

A product manager going into the field will have an opportunity to handle all Celanese chemical products—not just the ones he's been specializing in. As a matter of deliberate policy, all the men will be going into new territories where they have not worked before—to broaden their knowledge of the problems in different areas.

Who Gets Picked: The six men involved in this summer's interchanges are all chemists or chemical engineers between 30 and 35 years old, have been with Celanese a minimum of 5 years (the Chemical Division has only existed since 1946), are all considered promising men in Celanese's middle management. In their present jobs their rank is roughly commensurate.

But there's a good chance that they won't profit equally. Product managers, points out Stevens, will get the most out of this first switch. "District managers are inevitably going to spend part of their time away from their regular jobs worrying about their accounts," he says. "And furthermore, it's easier for a district manager to take over a product manager's job. Why? He doesn't have to learn the personalities of many new customers. A product manager, on the other hand, leaves himself open to criticism by the district manager for 'snafuing' his territory."

Chance for Observation: But most important, from the company's point of view, job-trading gives management an opportunity to observe the growth of its personnel. And with top executive talent at a premium today, that's no small issue in executive training.

Not even top Celanese officials know how far the movement will go, but six men are already slated for the big switch next year, and more are sure to be nominated.

As one executive put it, "It's still just an experiment in management development, but one we feel is well worth pilot-planting."

FTC'S HOWREY: Charged with a serious responsibility.

Challenge to Industry

"Don't cry over spilled milk—that's the cow's business." That bit of whimsy has often been pondered by many a chemical executive. For, somehow or other, whenever any controversy arises about a consumer product it's usually the chemical raw material from which it is made that bears the brunt of public criticism.

Last fortnight, for example, a plastic sports car careened into another (steel) car two miles west of Greenwood, S.C. Local newsmen photographed the fire-demolished wreck, dispatched the photo to newspapers throughout the nation. Graphically described was the "flaming rocket" end of the sports car—with plenty of emphasis on the word "plastic." Last year "torch sweaters" were in the headlines and "brushed rayon" was the keynoted culprit. "Brushed" may have eluded many readers; "rayon" did not. That didn't do the rayon industry any good.

But by this week one segment of the chemical process industries—the makers of synthetic fibers—had some reason to hope that they at least might be spared from any more such unsavory publicity. The Flammable Fabrics Act became law, prohibits the manufacture and sale of apparel and fabrics "so highly flammable as to be dangerous when worn."

The new federal regulation—which will be administered and enforced by the Federal Trade Commission's Edward Howrey—in practice will regulate some activities of textile weavers. It's set up so that a mill's customers can demand a guarantee that any fabric will meet safety standards. The edict has been accorded a fairly enthusiastic reception by the textile industry. Most of the enthusiasm, however, is not purely for the bill itself; rather, passage of a uniform federal statute heads off the probability that a motley collection of unrealistic statutes would be pushed through by municipalities or states. There's solid enthusiasm, though, in other quarters: the makers of flame-retardants envision the law as breathing new life into their sales.

Real Target: The real target of the law is not so much to restrict the use of fibers as it is to govern fabric construction. (Sheer fabrics, nets, voiles, long-pile weaves can be tinderous.) The greatest hazard of misapplication is faced by wool, cellulosics (cotton, acetates, viscose.) Makers of thermoplastic fibers have less concern—"they melt, rather than flare."

To minimize fabric flammability industry will use (1) heavier, more-compact weaving, more-even fiber distribution, (2) shorter surface fibers, (3) blends with flame-resistant fibers or fibers that have been treated with flame-retardants.

If the regulation is enforceable and enforced, it will, apart from safeguarding the public, spare fiber producers a multitude of worries—worries spawned by newspaper headlines. That's a relief they have long dreamed about.

Fewer Slips per Shop

Chemical process companies played a leading part in making 1953 the safest year on record in the U.S. manufacturing industries.

This "assist" shows up in the latest government report—out this week—on injury-frequency rates in U.S. factories. Most branches of the chemical industry lowered their injury rates by substantial proportions last year, and this accomplishment was a primary cause in the reduction of the all-manufacturing average to 13.7 disabling work injuries for each million employee-hours worked. Previous low was 14.3 in 1952.

Of the 13 chemical industry divisions listed in the report by the Bureau of Labor Statistics, all but three were well below the nationwide average. Although figures are available only for segments of industries, not for broad industry groups, it appears that the chemical industry as a whole has a better safety standing than any other, and also achieved a greater improvement in accident frequency from 1952 to 1953.

Synthetic Fibers Safest: As has become traditional in recent years, the leader in this safety derby among all industries is the synthetic fibers branch of the chemical industry. Shops in this category set the pace in 1952 with an injury rate of only 1.6, and last year they trimmed that figure by more than 47% to a 1.1 level. With some 50,000 production workers employed in about 40 synthetic fiber factories, that rate means an average of only about of 2.5 injuries per factory per year.

For five chemical industry branches, 1953 was the safest year to date. These record-breakers included synthetic fibers, industrial inorganics, drugs and medicines, paints and pigments, and fertilizers. The table below shows that all but two of the major industry divisions cut down their accident rates last year; and note, too, that in those two exceptions, the rates are well below the national average.

SAFETY SYNOPSIS

(Showing 1953 improvement in chemical process industries' injury-frequency rates)

	Four-year average 1949-'52	1953	Percent change
Industrial inorganic chemicals	8.9	5.8	—34.8%
Plastics	6.0	5.4	—10.0%
Synthetic rubber	3.1	2.8	— 9.7%
Synthetic fibers	2.1	1.1	—47.5%
Explosives	3.0	3.2	+ 6.7%
Drugs and medicines	8.8	8.2	— 6.8%
Soaps, glycerine, and detergents	8.2	8.7	+ 6.1%
Paints and related materials	12.1	10.7	—11.6%
Fertilizers	22.2	18.3	—17.6%
Compressed and liquefied gases	12.3	8.0	—35.0%

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AID TO INDONESIA: UN experts conduct classes in organic, rubber technology.

FOREIGN. . . . . .

UN Aid/Indonesia: At the request of the government of Indonesia, the UN has established classes in organic, rubber, and leather technology at the Gadjah Mada University in Djokjakarta. Conducting the lecture (*above*) on quick tannin-control analysis: Yugoslavia's Ing. E. Gergely.

•

Urea/India: Chemical Construction Co., according to reports emanating from Bombay, is currently competing with two German and one Italian firm for the contract to build a urea and ammonium nitrate plant for the government of India at Sindri—in the state of Bihar.

At the plant site, 10 million cu. ft. of coke-oven gas will be available for the proposed plant—4 million to fire the coke ovens and 6 million to be converted into ammonia. Estimated capacity: 35 tons/day of fertilizer-grade urea; 150 tons/day of ammonium nitrate.

•

Dyes, Paint/Egypt: In an effort to quell rising Arab disfavor, Imperial Chemical Industries, London, will build a paint and dyestuffs plant in Egypt "in the very near future." Triggering the move: an agreement—between member nations of the Arab League—that forbids any company trading or being represented in Israel from doing business in Arab countries.

ICI, prior to the war had considerable holdings in Israel, was unable to withdraw its capital investment in a plant producing paints and dyes due to an Israeli law that forbids withdrawal of currency. But now it wants to continue trading with Arab nations, too.

The only way to prove its good intentions, the Arab Regional Boycott Committee contends, is to play tit for tat—build a comparable plant in an Arab country, namely Egypt.

ICI officials have assessed the situation with Egyptian representatives, will get the new expansion program launched soon.

•

Nitrogen/Turkey: The Minister of State Enterprises in Turkey has revealed that invitations have been sent to two French, two Italian, two German, and two American firms to submit bids for the construction and equipment of a proposed nitrogen plant at Kutahya. Estimated cost: $21.4 million, in which it's hoped both Turkish and foreign capital will be invested.

•

Fatty Acids/Italy: Blaw-Knox Co.'s Chemical Plant Div. has received an order from Asborno Saponerie Liguri S.p.A., Arquata Scrivia, Italy, to build a $150,000 continuous fat-splitting plant, using the Colgate-Emery process. Capacity: 5,000 lbs./hour.

•

Sulfuric Acid/Austria: The Chemical Research Institute, Vienna, has established the first plant in Austria to produce sulfuric acid from gypsum. Pilot-planting since 1952, institute directors are finally convinced of the feasibility of the operation. What compensates in part for the high manufacturing cost: production of portland cement, a valuable by-product that's badly needed by Austrian contractors and builders.

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NONYL PHENOL

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Description:

Jefferson's nonyl phenol is a mixture of monoalkyl phenols, predominantly para substituted and is a clear viscous liquid. The side chains are isomeric branched alkyl radicals.

Sales Specifications:

Specific Gravity at 20/20 °C.	0.94-0.95
Hydroxyl Number	245-258
Color, Pt-Co Scale	300 max.
Appearance	Clear and substantially free of suspended matter.
Boiling Range, ASTM (760 mm.),°C.	
IBP:	287° min.
5% :	290° min.
95%:	302° max.

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2. A stabilizer for ethyl cellulose
3. A plasticizer for cellulose esters
4. An intermediate for other plasticizers
5. A starting material for production of lubricating oil additives and rubber chemicals
6. An antioxidant

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Immediate shipment in tank cars and drums.

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Glycol Ethers

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Briefs

From recent literature

No. 6 in a Series

Modified phenol-aldehyde resins for coating compositions to give films which are markedly resistant to weathering and are otherwise durable, are relatively inert toward, and compatible with, pigments and fillers, are smooth, have high gloss, are resistant to water and alkali, and retain their hardness under conditions of high humidity, can be obtained using nonyl phenol and an aldehyde as starting materials.

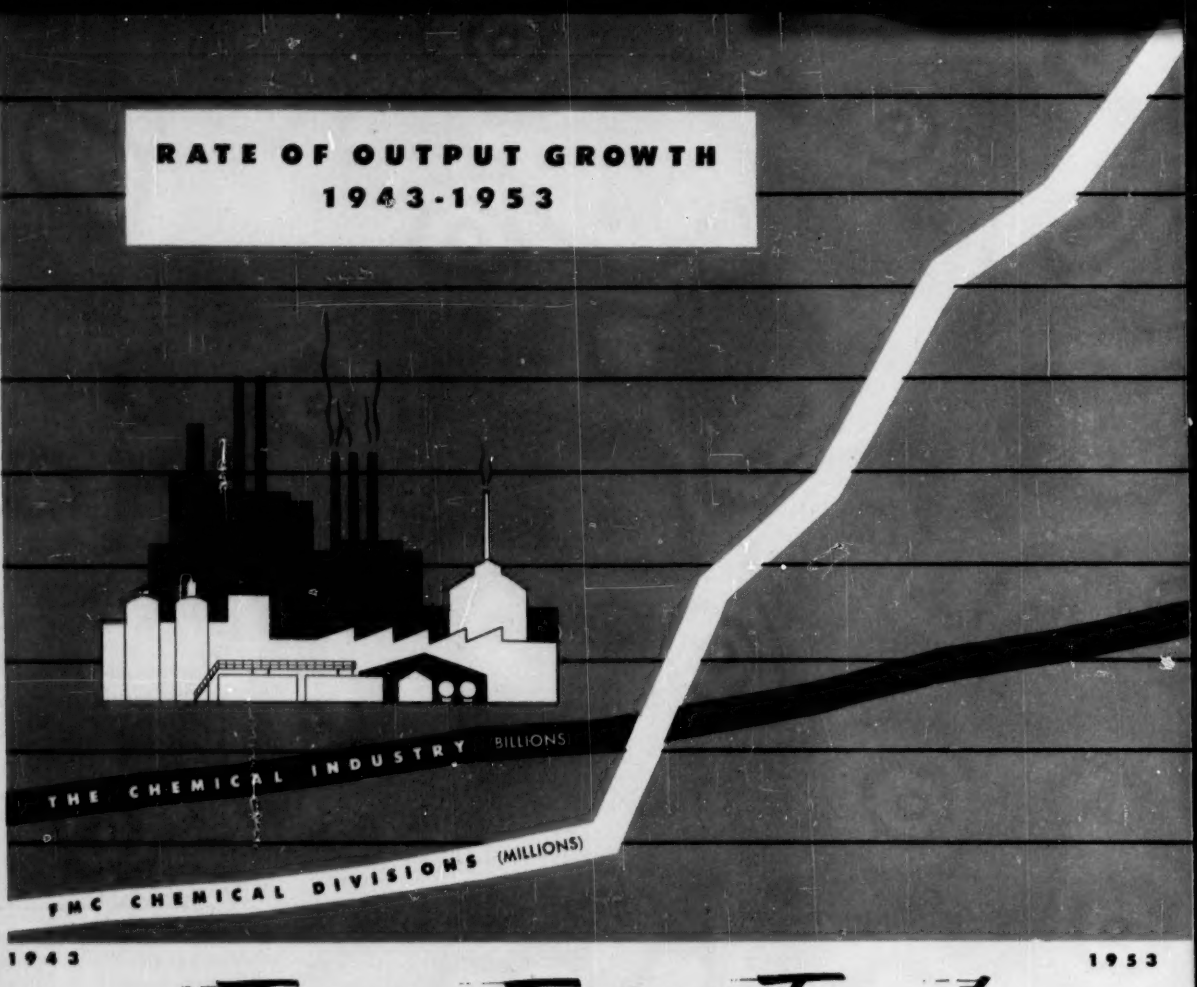
A fire extinguisher compound which is noncorrosive can be produced by dissolving in water 1 to 10 parts of sodium nitrite per 10 parts of an alkylated phenolethylene oxide condensate. The ingredients are mutually soluble in a dilute water solution and do not react to accelerate corrosion in a concentrated solution.

New thermoplastic compositions which are particularly useful in coating formulations, waxes, insecticidal compositions, etc., may be prepared by condensing alkyl phenol with formaldehyde and a higher fatty acid having at least 8 carbon atoms, converting the condensation product to a metal salt, and adding a fatty alcohol of at least 8 carbon atoms. The composition is soluble in gasoline, kerosene, and various petroleum naphthas. When used on metal, the protective coating is a tough, adherent, water-repellent film which may be removed when desired by wiping with a cloth dipped in kerosene.

A washing powder containing a synthetic, soapless, oily liquid detergent, can be produced by mixing a solution of the polyethylene oxide condensation product of an alkyl phenol with the sodium salt of carboxymethyl cellulose, sodium carbonate, sodium bicarbonate, and sodium sulfate. The detergent does not tend to separate on storage from the inorganic constituents used to make up the powder.

These developments are abstracted from recent publications or U.S. patents. They may suggest applications of Jefferson Nonyl Phenol in your products or processes.

FMC CHEMICALS



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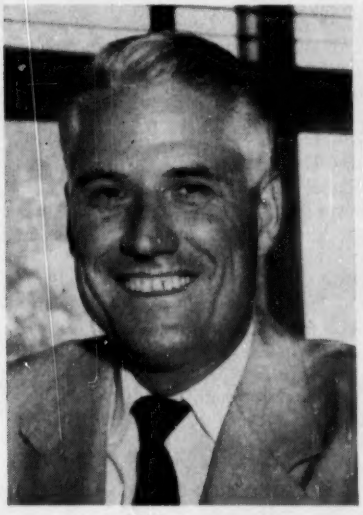

WIDE WORLD

FARMER, LEWIS: Should chemical labor unions be inclusive or exclusive?

LABOR . . . . . .

Membership Restrictions: The question of how exclusive a chemical labor union should be is moot this week, in view of developments on both coasts:

• At Seattle, Wash., a representation election has been ordered for a group of five Seattle Gas Co. chemists who now are in a bargaining unit represented by the International Chemical Workers Union (AFL). The National Labor Relations Board, in which Republicans headed by Chairman Guy Farmer now have a majority, has found that the chemists are "professional employees" as defined in the Taft-Hartley law and hence could constitute a separate bargaining unit. The election will be on remaining in the ICWU or withdrawing from the over-all bargaining unit.

• An advocate of a more inclusive policy on union membership is A. D. Lewis, president of District 50, United Mine Workers, and brother of UMW chieftain John L. Lewis. District 50 was set up primarily for workers in chemical, coke and gas plants, but has become a catch-all union that includes the United Construction Workers. Newly incorporated into this amalgam: the United Marine Workers, an organization formed by tugboatmen and other waterfront workers in eight Atlantic Coast ports. These persons voted to drop out of the old International Longshoremen's Assn. (Ind.), which has been fighting to keep from being put out of business by a new longshore union backed by the AFL.

•

Alpha and Omega: Some strikes are getting started just as others are being settled; but on the whole, there's a net gain for peaceful production this week.

• Both at Niagara Falls, N.Y., and at Morgantown, W. Va., the Mathieson plants are back in operation after union-induced shutdowns. An "amicable agreement" ended the four-day walkout by some 500 employees at the Niagara Falls plant, where the United Gas, Coke & Chemical Workers (CIO) had charged that contractors were being used to do work that should have been under the chemical union's jurisdiction. But even though the four-week strike at Morgantown was called off—at least temporarily—in March, the dispute there is still unsettled. Last week, officials of the AFL Carpenters, Electricians and Plumbers unions went to the National Labor Relations Board to file a charge of unfair labor relations practices. The unionists contend that since Feb. 24, Mathieson has failed and refused to negotiate on a new contract to replace the one that expired Feb. 10. A company spokesman declined to comment on the charges.

• For the first time since it was opened 11 years ago, the Monsanto plant in Texas City, Tex., was closed last week when 800 employees represented by the Galveston Metal Trades Council (AFL) struck without warning. It was reported that the union was asking a 15¢/hour wage rise while the company had offered a 7¢ increase.

• A general wage boost of 6¢/hour and an "improved" pension plan brought an end to the seven-week strike by 1,030 production workers at the Congoleum-Nairn floor-covering

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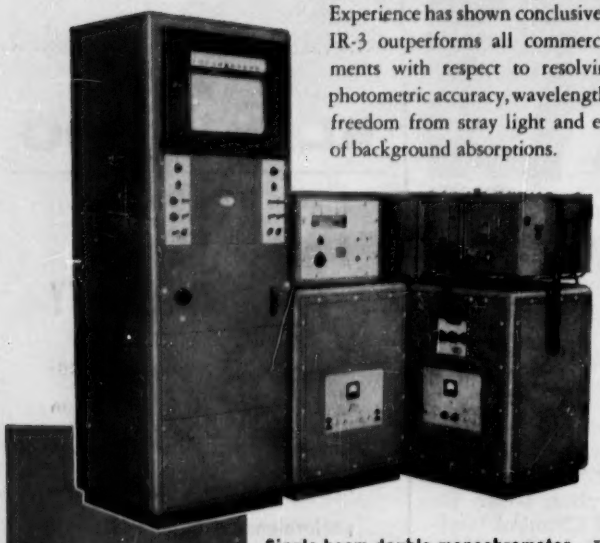

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B & I . . . . . .

plant at Kearny, N.J. Originally, Local 111 of the United Rubber Workers (CIO) had demanded a 20¢ wage hike.

• A snag has been reported in negotiations for a contract covering 16,000 employees of International Nickel Co. at Sudbury and Port Coldborne, Ont. The International Union of Mine, Mill & Smelter Workers, which has been pushing for a 15¢/hour package deal, says it will submit the company's latest offer to a vote by the members.

• Schutte & Koerting Co., maker of pumps and other chemical equipment, has its main plant at Cornwells Heights, Pa., back in production after a labor dispute.

•

Unions at the Bar: A number of labor unions and their officials have been in court recently in cases of broad national significance.

• In Frankfort, Ky., Commissioner Watson Clay of the state court of appeals ruled that a labor union is liable for damages if its illegal actions force an employer to go out of business.

• In Beaumont, Tex., Local 254 of the Oil Workers International Union (CIO) is suing OWIU Local 23 and Gulf Oil Corp., charging discrimination against Negro employees. Local 254 is asking for an injunction against the alleged practice of reserving certain jobs for white persons only. Somewhat similar charges have been made by the National Assn. for the Advancement of Colored People concerning hiring practices at atomic energy plants in South Carolina and Kentucky.

• In Minneapolis, District Judge Levi Hall upheld the constitutionality of a Minnesota law requiring that a majority of pickets in any strike must be employees of the company concerned.

LEGAL . . . . . .

Incensed over Scents: Importers and manufacturers of toilet goods are keyed up over the antitrust suits recently filed in New York by the U.S. Dept. of Justice against four perfume companies with European connections—Corday, Guerlain, Lanvin and Lentheric. Antitrust Director Stanley Barnes alleges that these firms have been monopolizing the importation of the products of their affiliated companies in France, thus keeping U.S. prices "substantially higher" than those in foreign countires. He wants the court to order the firms to permit every applicant to import those products into this country. (Lentheric,

One-hundred-and-fifty-ton per day anhydrous ammonia plant for Shell Chemical Corporation at Ventura, California.

...and the improved economics of this new design suited National Distillers, too!

The economic highlights of Shell Chemical's new ammonia plant are impressive. Here's a brief summary:

(1) Compressor savings of between 25 and 35%.

(2) Production exceeding design guarantees.

(3) Greatly improved catalyst.

(4) Substantial reduction in cost of recovery and re-circulation facilities.

Engineering such as this interested National Distillers Products Corporation, too. And now a somewhat similar Kellogg-designed plant is going up at Tuscola, Ill., as part of its vast new petrochemical complex at this location.

The improved economics of the Kellogg ammonia process are further proof of the contribution that advanced engineering can make *today* for tomorrow's better processes. Cooperating closely with Shell's own engineering staff, Kellogg engineers, not only designed an improved converter for the nitrogen-hydrogen reaction, but also devised a new, high-pressure reforming step that conserved the pressure at which natural gas is produced.

The plant is typical of the results of Kellogg's "Engineering for Tomorrow" which finds new ways to higher yields, bigger profits, less down-time.

For detailed information on Kellogg's ammonia process write: CHEMICAL PROCESS DIVISION, The M. W. Kellogg Company, (a subsidiary of Pullman Incorporated), 225 Broadway, New York 7, New York.

Typical Current Kellogg Chemical Plant Contracts Are in the Fields of: ethylene • polyethylene • phenol-from-cumene anhydrous ammonia • methanol • phthalic anhydride • ammonium sulfate • liquid fuels and chemicals synthesized from coal glyceride purification • nitric acid • ammonium nitrate.

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Stauffer chemicals are associated with the growth and expansion of many important American Industries.

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*Sodium Silico Fluoride**
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Sulphur (processed) for all uses
Sulphur-Rubbermakers Sulphur-Insoluble (in CS_2) (special-purpose rubber-making)
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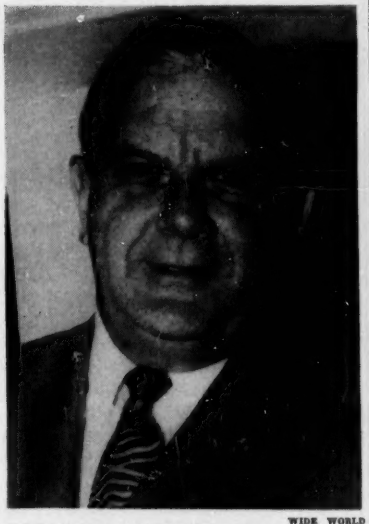


WIDE WORLD

PROSECUTOR BARNES: For French toilet goods, how many importers?

which manufactures its toiletries in the U.S., promptly bowed out of these proceedings by signing a consent settlement.)

Chaos in commerce, say spokesmen for the defendant companies, would result from a court decision upholding the government's complaints. They explain that U.S. retailers were being hurt by uncontrolled imports* until 21 importers and manufacturers of such products entered into a 1950 agreement providing that not more than one bottle of any of their products could be brought into the U.S. without a license. This, they add, is under a Tariff Act clause that forbids importation of brandname merchandise without the consent of the owner of the U.S.-registered trademark.

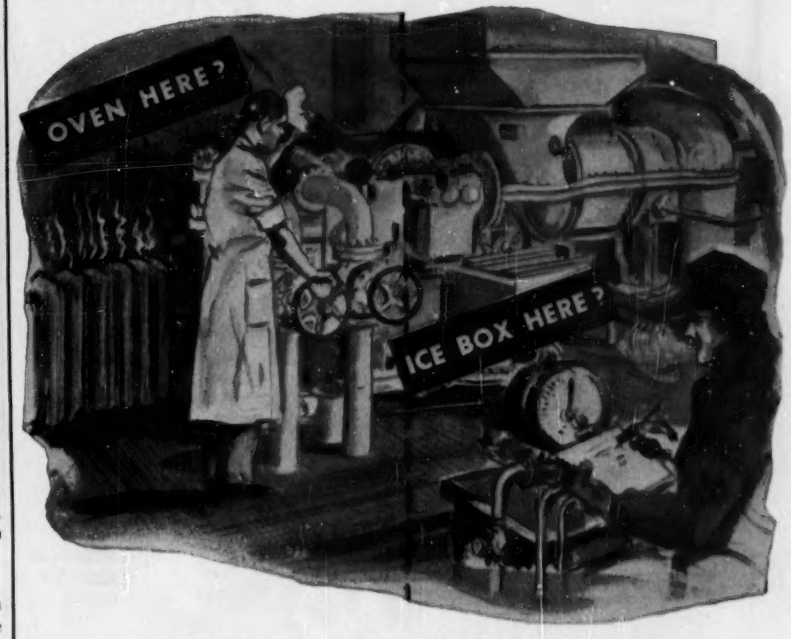
That clause would have been liberalized by a bill (H.R. 9476) that was pending in Congress until its sudden death in committee last week. Effect of that bill would have been to make it easier for anyone to import U.S.-trademarked items produced abroad by branches of U.S. firms.

•

Court Ducks Ruling: Makers of patent medicines have failed to get a court ruling on what kinds of drugs may be sold in retail outlets other than drug stores under New Jersey law. The state supreme court threw out a lower court's decision that would have permitted many patent medicines to be sold in department stores and groceries; this, the high court holds, is for the legislature to decide. The

* One New York store reported paying out more than $150,000 on French toilet goods that probably had been brought here by tourists but which were presented at the New York store for "refunds."

Will your plant be like this next winter?



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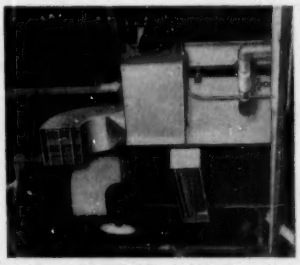
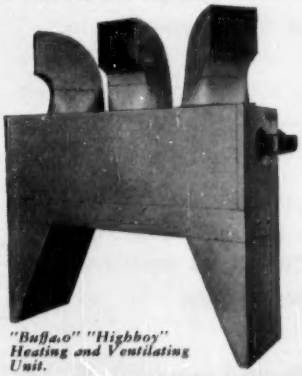


LOW COST HEAT "AIMED" where you want it, with this efficient overhead "Lowboy" unit. No floor space required. "Buffalo" swivel outlets provide adjustable discharge.



"Buffalo" "Highboy" Heating and Ventilating Unit.

INSTALL "BUFFALO" HEATING AND VENTILATING UNITS

A plant can have plenty of heating *capacity*, yet still be uncomfortably chilly in vital working areas. That steam heat has to be efficiently *distributed and circulated*. "Buffalo" Units do both. Their non-freeze coils have maximum radiation surface for their size. Their quiet, efficient "Buffalo" Fans and swivel outlets give long, accurate heat "throw". What's more, there are models to distribute fresh, warmed, filtered outside air — or to ventilate during warm weather. Write for BULLETIN 3704-A which shows you just the models to pick — for the temperatures you want — for the area to be heated. For a more comfortable healthy plant, write for Bulletin 3704-A now!

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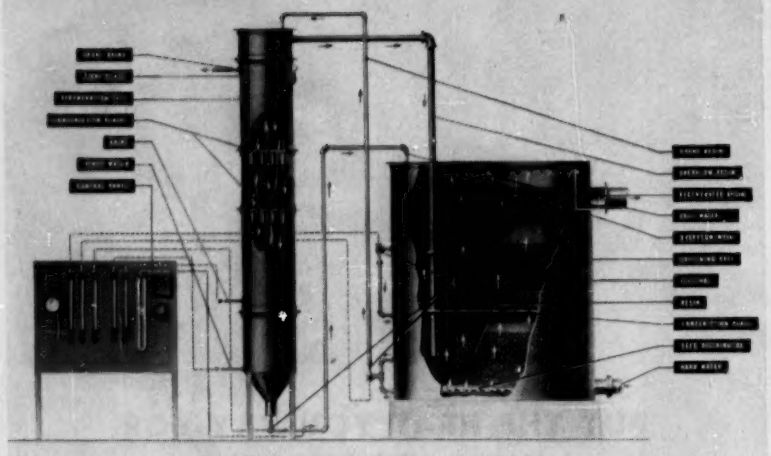
Look what's happened to Ion-Exchange



Illustrative drawing of the Dorrco Hydro-Softener. Note that regeneration is carried out in a separate tank from the softening cell to minimize danger of contaminating treated water.

It's Gone Continuous!

Infant prodigy of the Process Industries, ion-exchange has often been a problem child as well. Batch operation has been one of its major limitations in today's age of continuous processing.

Now, for the first time, the base or cation exchange cycle has been put on a completely continuous basis through the Dorrco Hydro-Softener. Originally developed for softening municipal and industrial water supplies, the Hydro-Softener has definite operational and economic advantages over conventional batch systems. And the basic principles show promise in many other fields as well.

Whenever a process involves the use of ion-exchange, the separation of finely divided solids in suspension, or fluidizing techniques, Dorr and its Associated Companies throughout the world can provide the correct equipment for the job.

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B & I . . . . . .

Proprietary Assn. had sought a definition, noting that the state law prohibiting anyone but a pharmacist from selling "drugs" does not cover "nonpoisonous patent and propriety medicines."

•

Canadian Crackdowns: Following recent actions against rubber and gasoline companies, the Canadian government now has won its suit against seven mills, 20 wholesalers and two individuals in the fine-paper industry. In the Ontario Assize Court at Toronto, Justice Wishart Spence found the defendants guilty of price-fixing and restraint of trade, levied fines totaling $242,000. The paper companies are planning to appeal the decision, and the government is contemplating watchfulness to prevent "continuation of the offense even after conviction and sentence."

•

Gas Case Appeal: Under an order signed by Supreme Court Justice Hugo Black, the losing parties in the Phillips natural gas case (*CW, June 19, p. 40*) have through this week to file petitions asking the court to review its decision that the Federal Power Commission has authority to regulate wholesale pricing of natural gas by independent producers. The State of Texas and Phillips Petroleum Co. have announced that they'll appeal the verdict.

Meanwhile, indications from Washington are that the FPC is in no hurry to begin its new regulating duties, which may affect a number of chemical and petrochemical companies in the Southwest. The agency doesn't want to become involved in this extra work while an appeal is pending before the Supreme Court and while Congress is considering bills that would exempt independent producers from federal controls.

KEY CHANGES. . .

George D. Wessinger, to divisional vice-president, Sterling-Winthrop Research Institute, Rensselaer, N.Y.

Franklin W. Wedge, to manager, Commercial Chemical Development Dept., Ansul Chemical Co., Marinette, Wis.

S. H. Newburn, to president, Air Reduction Canada, Ltd., Montreal.

William H. Evans, to vice-president, Diamond Alkali Co., Cleveland.

J. Harold Kolseth, to executive vice-president, Devoe & Raynolds Co., Inc., New York.

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☐ Have Technical Representative call.

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Company_____

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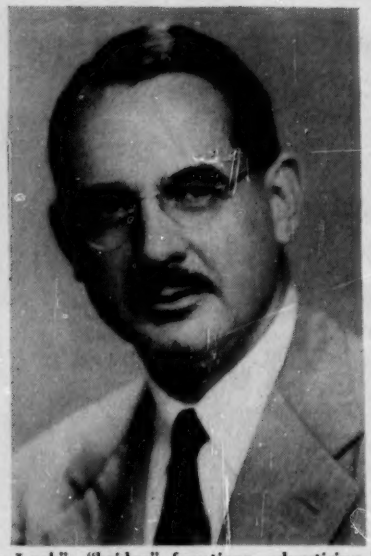
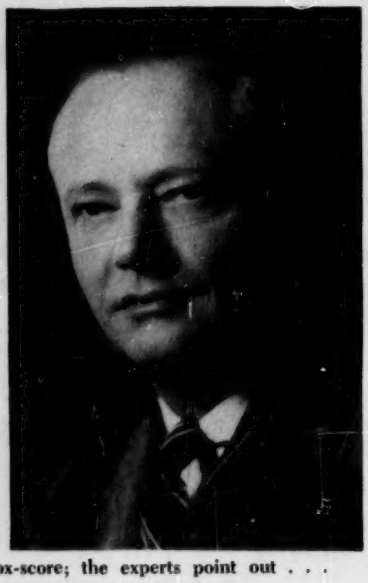
City_____ Zone_____ State_____





LEEDS, WERNER, BROWN: "New Look", "bridge" functions, advertising box-score; the experts point out . . .

How to Trade on the Trademark

How, in the face of the rapid introduction of new products and the search for new markets, can the value of trademarks be preserved and enhanced?

Last week, at the Pierre hotel in New York, advertising, marketing, sales promotion and public relations executives gathered to discuss this problem resulting from the current accelerated sales pace. The occasion: the 76th annual meeting of the U. S. Trademark Assn.

A few years past, chemical makers, their efforts concentrated on producing the goods, could better afford to ignore the sales value of such tools as trademarks. But today, as they are edging more and more toward the consumer, producers find that trademarks are playing an increasingly important sales role.

Those present were bombarded with a barrage of counsel and prediction of things-to-come from government, legal, advertising, public relations and packaging specialists.

"New Look": From Daphne Leeds, assistant U. S. Commissioner of Patents, came a preview of what trademark litigants may expect when the now-in-draft-stage rules go into effect.

Keynoting her remarks as a "New Look" in trademark case practice, Mrs. Leeds emphasized that the rules:

- Will make it easier to get the facts to the Patent Office.
- Will simplify certain proofs of records.
- May lengthen the litigation period of a suit from filing to its termination. But, contends Commissioner Leeds, the "New Look" will provide a means of better, speedier trial procedure.

Tieing into today's stepped-up competition, Mrs. Leeds acknowledged that "trademarks are the very essence of competition. . . the focal point of the bulk of advertising. . . the symbol of repeat business."

Promotion Tool: That trademarks automatically play a major role in the promotion of the sale of products was the contention of Lyndon Brown, vice-president of the advertising agency, Dancer-Fitzgerald-Sample, Inc.

Brown cited four recent developments in business, each of which has created conditions calling for more efficient trademark use:

- Tremendous increase in advertising pressure.
- Rise of self-service.
- Leveling off of quality differences between brands.
- Increased volume of purchases made by individual customers.

Box Score: In the light of these business pressures, an effective trademark, averred Brown, should embody 13 advertising requirements. His list:

- Clear identification. Mark must point up advantages chorused in advertising.
- Timelessness. Mark must assist in accumulation of public attitudes over a period of time.
- Memorability. More important than ever today.
- Visibility. Increasing complexity and range of items compete for sales.
- Friendly feeling. As differences in products narrow, claims Brown, "people are more inclined to take products that create friendliness."
- Promise a benefit. Trademark in a lightening flash, must trigger a consumer benefit.
- Cue sales points. Trademark should provide a "critical psychological cue" that the product will satisfy a need.
- Dramatic. Mark should work toward getting an action response.
- Package tie-in. Package design and trademark design should be mutually supporting.
- TV applicability. This new medium demands trademarks that can be handled in animation or motion.
- Radio adaptability. Trademark must vocalize clearly and effectively.
- Print adaptability. Mark must fit the requirements of advertisements in all printed media.

Bridge: From William Werner, public relations manager, Procter & Gamble Co., came a plea for public relations thinking in trademarks.

Gist of Werner's remarks, directed particularly to "trademark men": keep in mind that a good trademark is essentially a "bridge" between the owner of the mark and the public.

He urged those concerned with trademarks to:

• Remember, besides merely the legal aspects of trademark law, the importance of what people in general, consciously or unconsciously, look for in trademarks.

• Avoid those hazards that will tend to harm or dilute a favorable public opinion toward trademarks.

• Guard the concept of trademarks against attack or dilution by those "who would regiment our choice of the things we sell and buy."

More but Easier: How the elusive legal, promotion and public relations problem birds all come home to roost in the trademark attorney's house was made evident by Boston attorney Earl Thomson. With registration applications now barreling along at an estimated 18,000 annual clip, the task of passing upon the adoption of any new mark grows ever more complex.

However, some relief may be in sight, the result of government action. Says Thomson: "Since the recent decisions give clear reasons why oppositions are sustained or dismissed, the attorney's task in passing upon availability appears a little easier."

For some of those present, many of the detailed considerations seemed remote in application. Not all ideas apply, of course, to all chemical makers. A chlorine-caustic producer, for example, would hardly use radio or TV to advertise price changes.

But practically all, realizing that brand awareness is a potent selling tool, agreed that trademarks are taking on increasing significance.

Poison "Marshmallows"

Consumer and industrial approaches are usually based on entirely different sales appeals. But on at least one point —convenience—the value of a product can be self-evident, be it in industry or marketplace. And right now, out in Chicago, one company finds its convenience appeal is paying off.

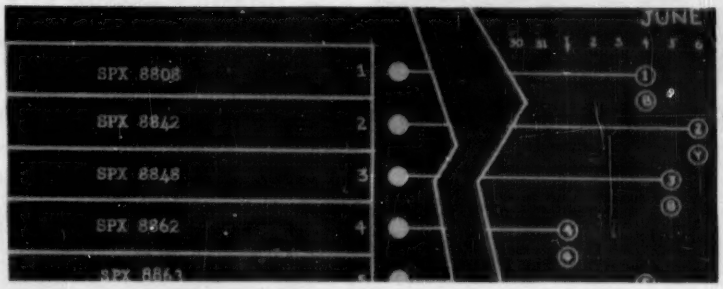
Adapting an old idea to a new material, Kraft Chemical Co. is offering a new form of that troublesome material, potassium cyanide. Cylindrical and about the size of a marshmallow, the new product, tabbed Cya-Nodes, contains one-half ounce potassium cyanide per pellet.

According to General Manager Gerald Kraft, the "marshmallows" offer these advantages:

• They are dust-free, sulfur-free, nonflaking.

• They are easy to weigh and handle, pouring easily out of the drum and even retrievable if accidentally spilled.

• They can be handled safely in



Pegs Plot Tank Car Travels

TRACKING DOWN tank cars used to be a cumbersome record-keeping chore at the Solvay Process Division of Allied Chemical and Dye Corp. But now, colored pegs and a calendar have pooled talents to simplify tank car tracing. The new peg-holed board shows at a blink:

• Date the car left the plant.

• Time in transit.

• Time of arrival at destination.

• Date of leaving the user's plant.

• Day of return to the original starting point.

This is how cards, colored pegs, holes, and calendar chart positions of Solvay's tank cars:

• At the left side of the big board, cards corresponding to tank cars are arranged vertically. Running horizontally away from each card is a double row of holes. At the top, a calendar also crosses the board.

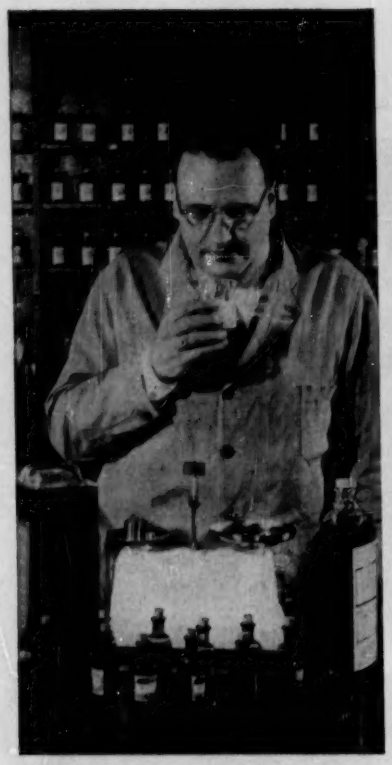
• Upon departure from the factory, a white peg bearing the card number is placed under the shipment date and a yellow peg is posted directly beneath the white signifying the order is in shipment.

• When the car reaches its destination, the white peg advances to the date of arrival; a blue peg replaces the yellow peg, indicating delivery.

• When notification is received that the car is being returned, the white peg is forwarded to the release date and the blue peg is displaced by a green one, denoting the return movement.

• Should a car require maintenance en route, red replaces the "transit" color.

Company spokesmen call it a "real handy" device, credit the idea to Donald Howe, accountant for the firm's Moundsville, W. Va., chlorine plant. Pictured above, Howe explains the system to visiting science teacher, Margaret Ann Lane. Lower cut pictures features of the peg board in detail.



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POTASSIUM CYANIDE IN A BASKET: Old idea, new sales appeal.

lightweight metal baskets (*see cut*) used for dissolving.

For years, a related product, sodium cyanide, has been available in "egg" form. But for some unknown reason, no one, at least in this country, has attempted until now to market a pelleted potassium salt. (Except for

First Nitrogen Roll-out

WITH ITS BARTON PLANT near New Orleans now approaching full production, Lion Oil Co. recently shipped its first tank car of anhydrous ammonia from the new installation. Lion's plant, two years a-building and now turning out 300 tons/day of ammonia, is expected to produce an average of 600 tons/day of anhydrous ammonia and pelleted ammonium nitrate within a short time. Railway and company officials* commemorated the movement of the initial tank car, which rolled to Swift and Co.'s plant at Harvey, La.

*(L. to R.) Texas & Pacific Railway Co.'s traffic vice president, C. G. Hayes; Lion's New Orleans chemical sales manager, G. G. Scott; Barton plant superintendent, R. L. VanZandt and manufacturing manager, J. B. Rogerson.

ETHYL ALCOHOL
2-AMINO-2-METHYL-1,3-PROPANEDIOL
BUTYL STEARATE
DIBUTYL PHTHALATE
METHANOL
BUTYL LACTATE
NITROPARAFFINS
AMMONIA
ETHYL ACETATE
AMYL ACETATE
BUTYL ACETATE
RIBOFLAVIN, USP
NP DERIVATIVES
BUTANOL
DIMETHYLAMINE
ACETONE
1-NITROPROPANE
2-NITROPROPANE
FORMALDEHYDE
NITROETHANE
ALKATERGE®
NITROMETHANE
HYDROXYLAMMONIUM SULFATE
PENTAERYTHRITOL
MONOMETHYLAMINE
TRIBUTYL PHOSPHATE
DIETHYL OXALATE
2-AMINO-2-METHYL-1-PROPANOL
TRIMETHYLAMINE
HYDROXYLAMMONIUM CHLORIDE
HYDROXYLAMMONIUM ACID SULFATE
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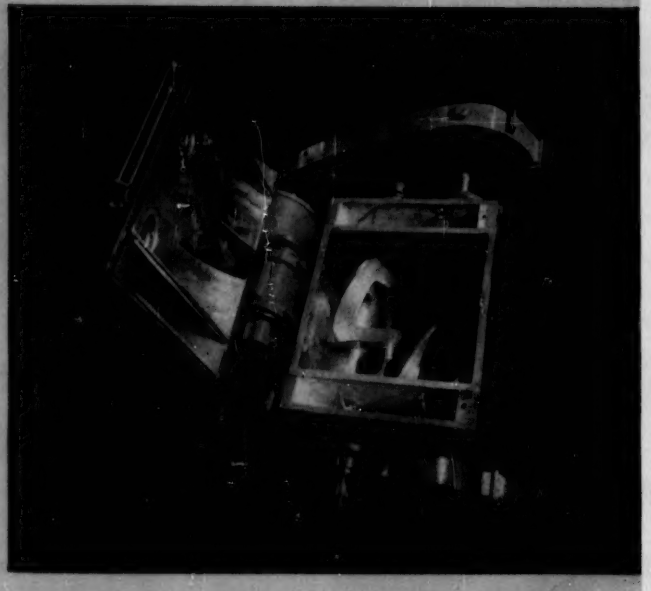
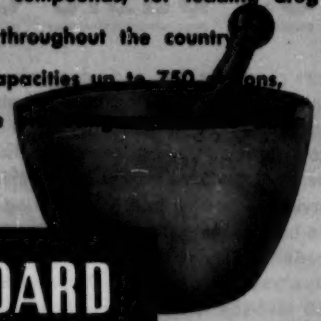


READCO Double Arm Mixers provide rapid, thorough dispersion of ingredients in pharmaceutical compounds, for leading drug manufacturers throughout the country. Available in capacities up to 750 gallons, these units are



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DISTRIBUTION . . . .

certain specific applications, the higher-priced potassium compound is no competitive match for the big seller, sodium cyanide.)

However, in at least one field, copper plating, high-speed plating baths employing the potassium salt have become quite popular in the last few years. And riding on this increased demand, market-sharp Gerald Kraft, casting about for a selling advantage, hit upon offering the potassium salt in "marshmallow" form.

Kraft makes no claim for originality. Nor is he under any illusions that his company can maintain the headstart it has over its competitors. But, judging from the response he's had, he's sure that anyone who can make his customer's load a trifle lighter is bound to find a ready market.

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For Reference Files: Sales training program analysis—a booklet outlining questions for assaying sales-training plans. Porter Henry & Co., New York.

• Two bulletins—"Beta benzoylacrylic acid" and "Nadic" (3,6-endomethylene - 1, 2, 3, 6, - tetrahydro-cisphthalic anhydride)—describing reactions and itemizing suggested uses. National Aniline Div., Allied Chemical & Dye Corp., New York.

• "Styrene Plastics Housewares Survey" published by Plastics Div., Monsanto Chemical Co. (Springfield, Mass.), contains marketing pattern for the sale of styrene plastics from molders to the consumer, shows market potential, channels of distribution, methods of marketing, price lines and mark-ups.

• Protective coatings—an illustrated brochure outlining the manufacture and "customizing" of various protective coatings. Rowe Paint and Varnish Co., Niagara Falls, N.Y.

• "Duolite C-25 Cation Exchange Resin"—leaflets providing technical data. Chemical Process Co., Redwood, Calif.

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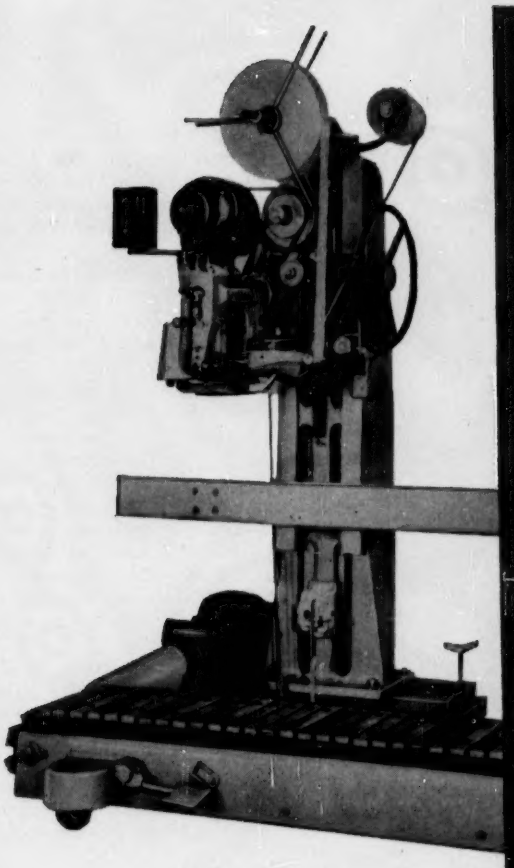
Distributor Appointments: The Penray Co. (Chicago) has formed a franchised branch, Western Ohio Penray, to distribute its automobile specialties in western Ohio and the Cincinnati area.

• B. F. Goodrich Co. will sell its vinyl coatings, and plastic sheeting in the Midwest through a new distributor, Singleton & Mack, Inc., Akron, O.

• Shield Chemical Corp. has named Certain-Teed Products Corp. (New York) to distribute its "Drycrete" integral waterproofers in all foreign countries in the Western Hemisphere and the Union of South Africa.



ET

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GRIFFITH AND DEWEY: For mass merchandising, new "poly" tubes, bottles.

New Process, New Outlook

Thin-walled polyethylene tubes produced by an extrusion process will make their U. S. debut for specialties packaging within three months.

More pliable than current "squeeze" bottles the new package is expected to challenge the position metals now hold in the collapsible-tube field.

Hurdles: polyethylene's permeability to flavorings and perfumes, cost of modifying conventional filling and sealing equipment.

The public will soon be buying a new type of polyethylene "squeeze" bottle and collapsible tubes as well, if Bradley Container Corp. (Maynard, Mass.) has its way. Though not in full production yet, the company expects this fall to be operating at an annual rate of 18 million units.

While Bradley claims all sorts of advantages for its packages (tradenamed Bracon), it's running into unconcealed skepticism from firms already in the polyethylene field. They see Bradley being tripped up by polyethylene's gravest drawback, permeability, as well as a host of others.

Overrated: Bradley takes a more optimistic view. It thinks the permeability problem is overrated; it has no intention of letting the problem stand in the way of its objective--"flexible tubes and bottles priced for mass-market merchandising."

Bradley is putting its faith in a European extrusion-fabrication process on which it has acquired exclusive U.S. and Canadian rights.* The process previously attracted the interest of Plax Corp. and Mills Division, Continental Can Co. But actual plans to import it did not get under way until Bradley Dewey, former head of Dewey & Almy, came upon it while traveling in Europe for W. R. Grace & Co. (he became a board member there after he retired from D&A).

The Bradley Container Corp. is the result. Organized last November, its president is Dewey and its vice president and general manager is Henry "Hank" Griffith. Formerly general manager of Plax, Griffith is known in the packaging industry as "Mr. Squeeze Bottle" (*see cut*).

Details: Bracon tubes and bottles closely resemble metal collapsible tubes. Details on the newcomers:

- Capacities. In general, the tubes range from 4 cc. to 16 oz. The bottles, which are cylindrical in shape, go up to quart sizes, though larger sizes are planned.
- Sealing. Tube bottoms are fused by radiant heat. Bottles are accompanied by round discs, which form their base when crimped and heat-sealed in place.
- Wall thickness. This depends on the purpose of the package. Thus an aspirator, because it will be squeezed rapidly, needs a wall thick enough to insure a snappy recovery. A hand cream tube needs a wall gauge that will draw back unused contents at the orifice but will not suck in air. In the case of an antiseptic ointment, the wall should be thin enough so that interior edges stick together as the ointment is emptied.

A selling point, according to Bradley, is that the package opening is an integral part of the neck. This, it is claimed, will not only eliminate the necessity of inserting a friction-fit plug (after filling) but will also avoid the leakage often encountered between the edges of the plugs and the necks of plastic bottles.

Printing and Prices: Another selling point is the "fine detail, close registration and multicolor printing," which Bradley says is made possible by offset printing on mandrels—superior, it also says, to the silk screening and hot stamping commonly used for blow-molded containers.

Pricewise, tubes are expected to be 5-10% below the cost of aluminum tubes; bottles, below any polyethylene bottle now on the market.

The fields Bradley hopes to capture with the Tuboplast process include drugs, cosmetics, food and household products. Specific items being worked on: nose drops, foot powders, salves and ointments, shaving creams, hand creams, sunburn lotions, glues, inks, air fresheners, silicon polishes and cleaners, seasonings, beverage concentrates, syrups and flavorings, catsup, and frozen foods.

Not the First: Bradley will not be the first with flexible polyethylene tubes. Mills blow-molds a tube for Sue-Ann Food Products (Chicago). Sue-Ann uses the tubes for packaging cheese spreads and cake icings.

Mills* reports that it will expand its line and volume "very soon." At present it has researchers finding out what can and what can't be packaged in

* Patents are owned by Unitubo, Vevey, Switzerland, the holding company, and Tuboplast, the manufacturing firm.

* It is estimated that Mills and Plax produced around 150 million bottles and containers last year. The prediction for 1954 is 250 million.

such tubes. In addition, it is investigating what steps might be taken to reduce the permeability of polyethylene.

Bradley doesn't appear too concerned about Mills competition. Griffith contends that blow-molding results in tube walls too thick for easy heat-sealing.

He says his optimism on permeability stems from the fact that most of the products Bradley visualizes being packaged here are now being packaged in Europe. The secret lies, he asserts, in "balancing a formula against polyethylene."†

As an example, he cites the fact that products containing light essences can usually be packaged in polyethylene if such essences are replaced with heavier ones. (Two essences that are particularly troublesome: oils of peppermint and wintergreen. Because oil of peppermint is used so extensively in toothpastes, Bradley says it is refusing to sell tubes to toothpaste makers.)

To prove out formulation suitability, Bradley can fill products for test marketing at its Maynard plant.

The Doubters: Here's a glance at the negative side of the picture. One possible user of the tubes says that, even if the permeability factor were overcome, "we still wouldn't be interested because it would mean junking all our filling equipment. Besides, we're not sure about what the public would think of the idea."

Another firm says that while it is impressed by the printing job Bradley does, it would only be interested if metal tubes were difficult to get—"if there should be a war, for instance." An aluminum company says that a polyethylene tube lacks "permanent foldability." Bradley's reply to this is that a tube doesn't have to stay folded—"all it has to do is collapse." (As regards "junking" filling equipment, Bradley says that it merely has to be modified and that this is not expensive to do.)

After recruiting a nationwide sales staff, Bradley is now setting up regional offices in Chicago, Los Angeles and New York. It feels that the tasteless, odorless, chemically inert plastic packages are only getting started. With Dewey's experience in the chemical industry and Griffith's in the "squeeze" business, there's a good chance the skeptics are in for a surprise.

† Plax has a similar viewpoint, explaining that "each product needs to be engineered." As yet it has not branched into collapsible tubes.

Everyone's in the Act

Rumor in January, reality in June—that's the story on sudsless detergent manufacture by soap's "Big Three." Just two weeks ago (June 14) Lever began testmarketing its Vim, a low-sudser, in three cities. P&G, with Dash, and Colgate, with Ad, have already initiated consumer buying studies (CW Newsletter, June 19).

Three new products are plainly devised to grab a share of the low-sudsing market dominated by Monsanto with its All. It's a market created by the booming popularity of automatic clothes- and dishwashers, and assiduously nursed by Monsanto. By last fall it was apparent that the big soapers were seriously eyeing the possibilities in low-sudsers (*CW, Sept. 19, p. 65*)—but their near-simultaneous decision to introduce such specialized products is uncommon.

Blessing for Nonionics: Characteristic of the new low-foaming products is a major switch in basic raw material type. Low-sudsers, generally speaking, are made with nonionic synthetic detergents. The syndet industry has been chiefly founded on high-sudsing anionics, often alkyl aryl sulfonates or sulfates.

Monsanto's All is typical of the new products—it's a detergent made with Monsanto's nonionic Sterox AWS. Formulation includes the conventional builders, optical whiteners, antiredeposition agents, perfumes, etc.

Lever's Vim, just getting under way, and slated for manufacture in the Cambridge, Mass., plant, is said to be made with Pluronics, Wyandotte's nonionic series of surface-active agents. Although Lever gives no details, Wyandotte has openly suggested to customers a formulation with Pluronics in combination with a low percentage of alkyl aryl sulfonates, and built with polyphosphates and metasilicates.

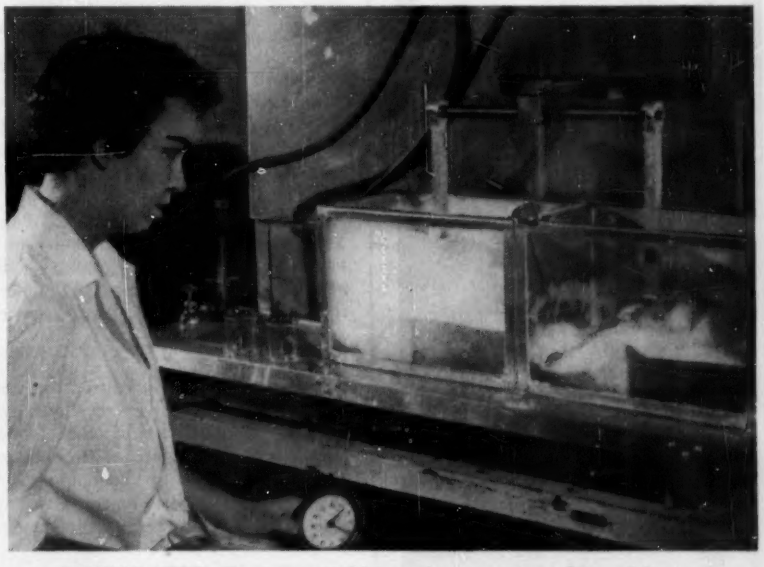
About Ad, Colgate admits only that it combines anionics with a higher ratio of nonionics. Currently pushed for automatics, it's said to be useful in regular machines, for dishes, and the like. Colgate may have it nationally distributed by year's end.

Dash, the Procter & Gamble entry, is unusual—it combines soap with an anionic detergent. P&G emphasizes that it leaves no soap film.

Uniformity Plus: The closely timed introduction of the new detergents has caused some problems. Independently, package designers at all three firms came up with bright red boxes for the new products, and original ad copy for them was said to be painfully similar.

Understandably, the products are in the same price range. Vim is about 35¢ for a 21-oz. box; Ad, 37¢ for 24 oz.; Dash, 38¢ for 24½ oz. So far in their testing, the big soapers haven't tried the 25-lb. and 50-lb. packages used by Monsanto for All, but there's no doubt some are closely considering it.

The purpose of low-sudsing deter-



SUDSING TEST: For more washing action, accent on low-sudsing.

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gents has been made clear in All promotion: no flooding the washing machine with foam, no cushioning the washer action with suds.

Colgate brings up another for the low-sudsers: the housewife is more likely to put in an adequate amount of detergent to do the cleaning job. Colgate has found that many housewives, satisfied with the blanket of suds in their conventional washing machines, actually don't use enough syndet to cleanse the clothes.

Just how far to carry this low-sudsing gambit appears to be in doubt. Vim is the least foaming. Lever sets up a scale like this: Surf, 100; Vim, 10. Monsanto's All—and likely most of the others—racks up about 30.

Automatic Market: With automatic clothes washers now outselling regular types, and with automatic dishwashers (which take much the same sort of detergent as the clothes washers) likely to receive a big plug from appliance dealers, the market for special detergents is sure to grow.

Pushing vigorously through dealers and repairmen for the market in about 9 million automatics now in use, Monsanto has built up a substantial business. The firm hasn't denied the estimates that it sold $23 million worth of All last year, and that business is even better now.

The battle that looms as the major soapers enter the low-sudsing field may have a number of side effects. One, it puts Monsanto into direct competition with some of its biggest customers. For another, it will remold the housewives' whole idea of what counts in a detergent. That could mean a number of products—low-sudsers that died from lack of acceptance—might stand a chance again. At any rate, it promises to be a fight worth watching.

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Purchase: Plant Food Corp. (Los Angeles) has bought the facilities of the Pomona Fertilizer Co. (Pomona, Calif.).

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Million-Dollar Plant: Hanna Paint Mfg. Co., Inc. has just moved into a new $1-million plant (125,000 sq. ft. of floor space) in Columbus, O., where it expects to quadruple production of finishes.

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Plastics Survey: A survey of the usefulness of plastics as a material for housing will be the subject of a one-year research program at the Massachusetts Institute of Technology. A grant of $10,000 by Monsanto Chemical Co. will support the project.

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Capsule Sprayer: A novel way to use compressed carbon dioxide as an aerosol propellant has been offered by Wolco Products, Inc. (Hartford, Conn.). The system requires a container, a screw-on valve unit, and a cartridge of compressed carbon dioxide. The cartridge, fastened to the valve unit, is replaceable—container may be refilled by the user, and "repressurized" by attaching a new carbon dioxide capsule. The new device is not yet in full production.

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Plaudits and Goodbye: Soil conditioners have fared variously at the hands of the public. Monsanto recently received an award from the Men's Garden Clubs of America, commending it for its development of Krilium soil conditioners, and for its way of introducing Krilium in May '52.

Fluffium, on the other hand, may bow out of the market. The liquid soil conditioner is now selling for $1.95/gal., although it was priced at $9.95/gal. when it was introduced in spring of '52. It is being sold now by Supplee-Biddle-Steltz Co. (Philadelphia), and the firm indicated recently that it will not produce any more when present stocks are depleted.

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Handpowered Automatic: Cossman Co. (Hollywood, Calif.) is now selling Swish-O-Dish, an "automatic sudsing dishwasher," which consists of a cellulose dishwashing sponge attached to a hollow handle into which liquid detergent is poured. The unit sells for 69¢ retail.

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Demineralizer: Water Wizard Inc. (Chicago) is now selling a handy demineralizing unit for water, calls it Water Wizard. The unit makes use of ion-exchange resins, sells for $2.49. Replacements filters are $1.79. Complete set includes a polyethylene bottle attached to polyethylene filter unit; filter unit can be adapted to fit water faucets.

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Specialties Dept: Standard Oil Co. (Indiana) has set up a new specialties department to handle Standard's growing line of specialties.

•

Bug Killer: West Disinfecting Co. (Long Island City, N. Y.) is now selling an emulsifiable insecticide concentrate, Westicide. It's a mixture of pyrethrins, piperonyl butoxide with an emulsifier, and petroleum hydrocarbons, and is suggested for spraying around food processing plants.

•

Patcher: Kwik-Roc, a repair and patching compound for concrete, is being marketed by A. C. Horn Div. of

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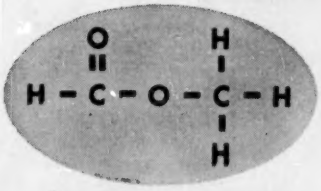

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Sun Chemical Corp. (Long Island City, N. Y.). A powder, it is mixed with water, and applied with a trowel; it's said to be ready for traffic within 45 minutes.

•

Medicine Quartet: Pharmaceutical firms launch the following:

• Hoffmann-La Roche Inc.—a new type of vitamin B_2 known as riboflavin-6-phosphate sodium. It has some 200 times the solubility in water of the form used heretofore.

• Abbott Labs—Erythrocin Lactobionate, a new soluble salt of Erythrocin for intravenous or intramuscular injection.

• Sterling-Winthrop Research Institute—Mantomide, a new amebicidal drug, said to be more active in smaller doses against endamoeba histolytic than certain broad-spectrum antibiotics and other commonly used drugs. It is N-(2,4-dichlorobenzyl)-N-(2-hydroxyethyl)dichloroacetamide.

• Geigy Pharmaceuticals—Sterosan, a remedy for skin disorders such as athlete's foot, impetigo, etc. Active ingredient: 5,7-dichloro-8-hydroxyquinaldine.

•

Cleaner and Suppressant: A water-dispersible chlorobenzene solvent-cleaner and odor suppressant dubbed Orthosolv is now being marketed by Solvay Process Div., Allied Chemical & Dye Corp. It may be used full strength as a solvent-cleaner or diluted as much as 1 part to 100 parts of water for odor control.

•

In Flake Form: Aceto Chemical Co., Inc. (Flushing, N.Y.) has begun offering its emulsifying wax, Ceramol, in flake form. The maker says customer interest prompted the development. Formerly it was made only in blocks.

•

New Facilities: National Lead Co. (New York) has opened a test station in Sayville, Long Island, N. Y. The station consists of testing buildings, and some 20 acres of test fences—enough to check weathering qualities of 30,000 paint samples. The new facilities also have a marine paint-testing area, where shipboard conditions can be duplicated.

• Finetex, Inc., Pompton Plains, N. J., is constructing a plant for manufacturing synthetic detergents. New facilities include a laboratory, are slated for completion about October 1.

• Arthur C. Mangels Industries, Phoenixville, Pa., has acquired C. Schrack & Co., Philadelphia varnish makers. The firm will be operated as a Mangels division.

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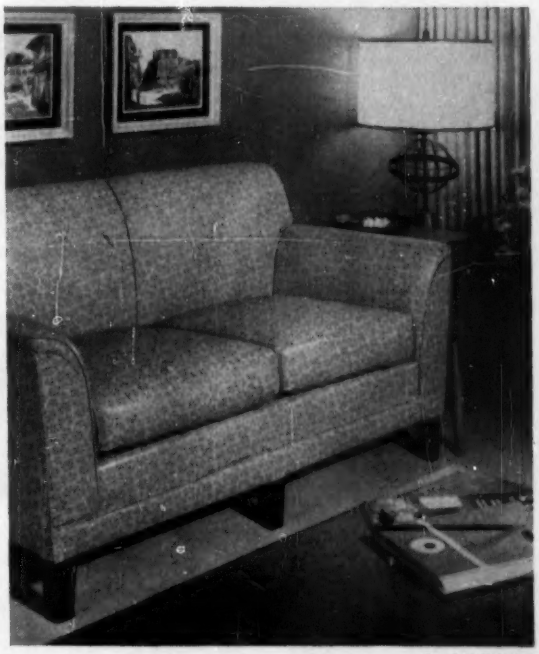

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Recruit on Titanium Team

The chemical industry was buzzing last week with the word that Union Carbide's Electro Metallurgical Co. was going to build a new, big titanium plant. What wasn't so well circulated, however, was the well-founded belief that it would probably foresake the Kroll process, would instead try to cash in on a sodium reduction method.

But company's officials, by midweek still mum on the entire subject, categorized newspaper reports of their plans as "highly inaccurate." The reports so categorized stated simply that Electro Met was going to build a $30-million plant at Ashtabula, next door to its present plant there, and would start to make titanium at the rate of 10,000 tons/year.

What it boils down to is that the reports, though probably premature, are not without substance. These are the facts leading up to that conclusion:

- Electro Met has been dickering with the government on a plant for some time. It evinced interest in a 10,000-ton/year plant as early as last summer (*CW, Aug. 8, '53, p. 49*).
- It has been looking over titanium processes, has one based on sodium reduction that's apparently ready to go.
- Its Ashtabula neighbor, National Distillers, has also been experimenting with titanium processing. Ever on the outlook for ways to broaden the market for its sodium, it's particularly interested in the sodium route.

Sodium Substitution: Present commercial producers of titanium employ the Kroll process, although each has a modification of it. Essentially, it's a chlorination of titanium dioxide to the tetrachloride followed by a reduction with magnesium to form titanium metal. But the method, batchwise and cumbersome, has decided shortcomings as a commercial process.

The substitution of sodium for magnesium isn't a new idea by any means. It was mentioned in a patented process in 1942 (U.S. Pat. 2,273,834). More recent patents (U.S. Pat. 2,618,549; 2,618,550) deal with the reduction of titanium tetrachloride with sodium amalgam.

But National Distillers has done some work on the use of sodium, has long and vocally been touting the merits of the process to Electro Met.

In any case, all the companies presently eager to get into titanium production are worried lest the process they choose—whether the Kroll or another—become obsolete. And that apparently is what's holding up Union Carbide's plans.

It's ready to put up its own money to build the plant but wants a commitment from General Services Administration that the government will pay for the plant should it become obsolete. It's also looking for a government contract for a portion of the output.

Should the deal with Electro Met go through, National Distillers will, of course, supply both chlorine and sodium for the operation. That would mean that it would have to enlarge its facilities correspondingly. In fact, the impact on the rest of the process industry if and when the firm goes ahead with a titanium plant in Ashtabula would be considerable.

For instance, National Distillers would probably spend as much as $20 million on a sodium-chlorine plant to take care of the extra demand. Little is known about the sodium process—e.g., amount of raw materials that are consumed, amounts that will be recycled—but the present belief is that National Distillers may find itself in the enviable spot of having an excess of chlorine on hand. With a handy supply of acytelene from Electro Met, it's a good bet that National Distillers would dip into its till for more money to build a polyvinyl chloride plant there.

All that naturally hinges on the outcome of the dealings with the government. And Electro Met isn't the only firm presently conducting serious negotiations for new plants. Others also looking for guaranteed market arrangements with or without government assistance in the form of a cash advance: Du Pont, which wants to build a $35-million, 8,000-ton/year plant in Tennessee; Monsanto Chemical (pilot plant); Horizons Titanium (pilot plant); Western Pyromet Corp. (pilot plant); Kaiser Aluminum & Chemical (pilot plant); Titanium Metals Corp. (pilot plant); Kennecott Copper Co. (commercial plant).

Other firms that have discussed titanium projects with the government but have not made much progress: United International Research, Glidden, Cooper Metallurgical Associates, Jordan Research & Engineering, National Distillers, Chicago Development Corp. and New Jersey Zinc.

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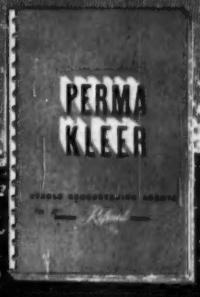

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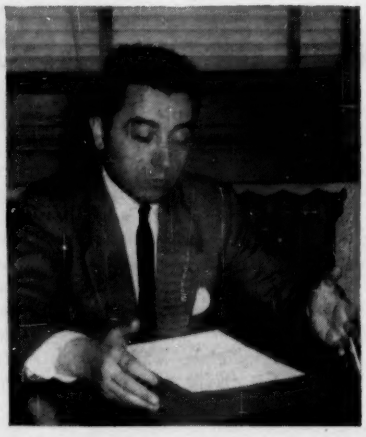
Old vs New

Anyone tracing the lineage of the modern U.S. process industry inevitably discovers its roots firmly planted in European soil: European engineers evolved highly efficient process equipment to scale up some tricky lab operations; they were in the forefront in such fields as coal hydrogenation and air separation as well as ammonia, urea and Fischer-Tropsch syntheses.

The high regard that these contributions so richly deserve has been exaggerated by some to almost a reverence. European design, in particular, has come to be considered a "sacred cow."

But Americans have some significant engineering achievements to their credit—in petroleum refining, in wood processing, in plastics. On these pages, CW reports the views of Pierre Salbaing, construction manager for Canada's L'Air Liquide, on the subject of European vs American engineering. And he knows whereof he speaks, for he's tried both.



Design for Independence

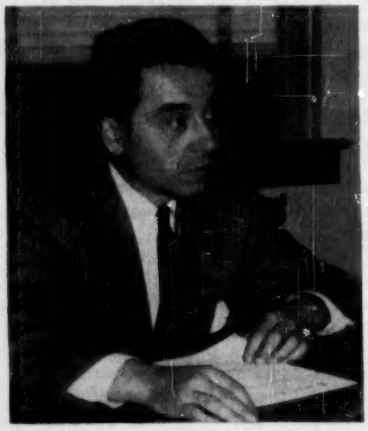
A heritage of political freedom 178 years long in no way gainsays the fact that this country is still bonded to European engineering design, is only now starting to shrug off this traditional foreign dominance. And as in the first struggle for independence, a Frenchman, allied with American forces and armed with many years experience, fronts the battle. He is Pierre Salbaing, an engineer with some very definite views, and subject this week

"The time has come to stop mending European fences, rely more upon American design."

of CHEMICAL WEEK's narrative camera.

Engineering and construction manager for L'Air Liquide Society (Montreal, Canada),* Salbaing entered the process industry by way of a degree in marine engineering (naval architecture), war service in the French navy, and a running three-year acquaintance with the United States. In 1946, L'Air Liquide was looking for an engineer with a personal knowledge of this country; Salbaing filled the bill.

From that time, his professional philosophy evolved from and was interwoven with the Society's subsequent development, mirrored in part its previous history. Founded in 1912, Canadian L'Air Liquide set itself to erecting processing units imported from France, built and blueprinted by the parent firm. The Canadian offspring actually fabricated its own units (according to French specifications) for short spans during the first and second world wars, but both endeavors



were aborted by the postwar revival of parent operations. It was not until 1948 that the Canadian group decided to revive its engineering division on a

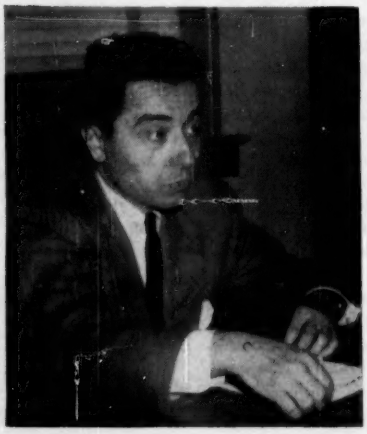
"Imposing foreign design is logically unsound, economically unfeasible."

permanent basis to design and fabricate the units it would sell. Construction of a 300 tons/day oxygen plant for International Nickel Co. (Sudbury, Canada), begun on basic French design in 1948 and completed only after many revisions and adaptations, trenchantly pointed up the need for native design to Salbaing and his Canadian associates.

Engineering Revolt: The time has come, declares Salbaing, to stop mending European fences; further use of European design for American plants would be logically unsound as well as economically unfeasible. He reasons like this:

- Americans think big and fast; they want high-powered operations, large outputs, and rapid amortizations. Europeans move more slowly, think in terms of smaller outputs, and aren't particularly eager about quick write-offs. While Americans worry about labor and low capital investments, Europeans concern themselves with power requirements.

As a result, says Salbaing, Europeans design for small, multiple units that require minimum power; high initial cost is partly offset by lower paid



* Canada's L'Air Liquide Society is a fabricating and engineering branch of France's L'Air Liquide (Paris), serves U.S. chemical industry through sales outlet Spaco, Inc. (New York).

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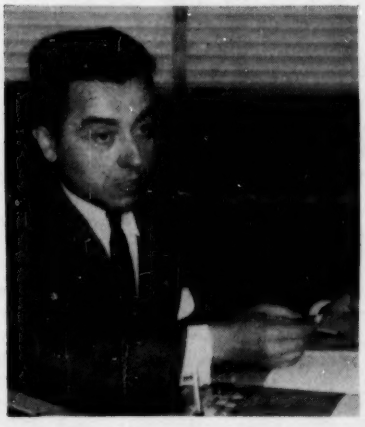

workers (e. g., he figures French wages at approximately half those in the U.S.). Salbaing cites for comparison a theoretical application for a heat exchanger: in a spot where a Frenchman would use three distinct units, an American wants one double-size unit whose output he can augment by applying more horsepower.

• By the same token, he continues,

"Americans think fast and big; Europeans, more slowly and in terms of small multiple units."

Americans can't afford to wait three months for an individually designed replacement part to arrive from overseas. American design overcomes this, makes any equipment dealer's shelves a readily available replacement depot. The size of the market here, moreover, makes even highly specialized items worth keeping in stock.

• In addition, says Salbaing, European engineering standards and codes along with the metric measurement system cause costly havoc when imported. Time-consuming revisions to meet ASME specifications is imperative. And though the metric system is desirable on some counts Americans are tooled to English units for maintenance and repairs as well as construction.

• Additional revisions in design, he avers, were made necessary by the comparatively large size of units in this country. Cast parts, popular in Europe, are generally unavailable in sizes big enough for equipment here. Even relatively minor things such as cast flanges for fractionating towers therefore, must be redesigned as welded flanges. And many such mechanical changes initiate a chain reaction of further mechanical and process revisions.

• Further, he continues, the time element is important. Since Europeans seldom design on a standard chassis, it takes extra time to settle on a final plan, adapt it to an American construc-

"On the practical side . . . measurement systems, time lapses and building codes to consider."

tion and operating framework, and make sure it meets ASME specifications. Americans, in a hurry to get plants onstream, would rather spend in profitable operation the time tied up by conferences. Home design not only circumvents this, but also eliminates additional delays due to trans-

ocean shipment, customs, and red tape. By working out of Canada instead of France, Salbaing reasons, L'Air Liquide saves customers three to five months on construction, up to one month on replacements and service.

American Spur: Salbaing concludes that continued reliance on European design could strangle American ingenuity. He feels that engineers in this

"When the pupil surpasses the teacher on certain subjects, it is time to switch roles."

country have actually outstripped their European counterparts in some respects, are ready to assume certain pedagogical roles.

In what is perhaps his most poignant argument for shedding foreign design shackles, Salbaing points to specific American superiorities:

• The widespread application of open construction has been pioneered and proved in the U.S. Engineers successfully designed insulated equipment, redesigned other equipment for insulated housings. In Europe, they still rely on regular buildings to enclose and protect their equipment at a greater cost. They probably don't trust the other, declares Salbaing, but they will come to it.

• Instrumentation and automatic controls were strictly an American development. This too, of course, entailed new and revised designs. The Europeans had to be shown that it could be done, are now gingerly wading in on the assumption that labor savings are worthwhile anywhere.

Itemized Interpretation: What does all this add up to? Some of the arguments, of course, are sufficient in themselves, need no further evaluation. But translated into terms of savings for those who reason from cost sheets, the switch from European to American design could amount to roughly 54% savings on a $1-million investment.

Taking 1948 as the critical year (the year his firm swung over) and assuming the same output value for the $1-million unit, Salbaing breaks down the 54% like this: 10-12% on building design; 18-20% on equipment design; 14-35% on duties levied against foreign equipment (the U.S. collects the same duty on equipment coming in from Canada).

A sizable saving, points out Salbaing —all these other considerations are equally pertinent. Importation of European scientific thinking accompanied the importation of European political ideas in the 18th century; but the former, unlike the latter, has outlived its immediate relevancy.

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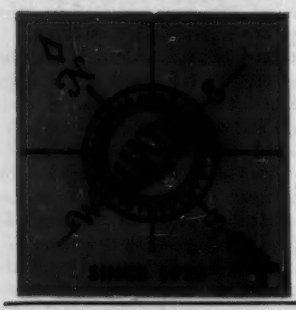

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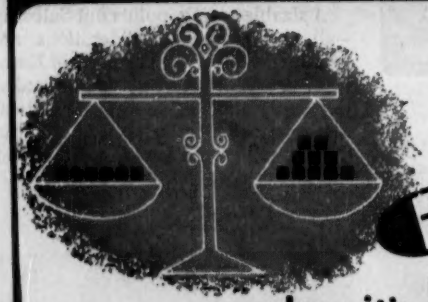

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EQUIPMENT

New Hygrometer: From Arthur D. Little, Inc. (Cambridge, Mass.) last week came news of a new instrument for measuring relative humidity. Developed under the direction of the firm's Walter J. Smith, the new method employs a carbon film. The project was done for the U.S. Signal Corps, and the instrument is already in use on Radiosondes carried by weather balloons to measure the humidity of the atmosphere.

One of the earlier means of measuring humidity depended on the expansion and contraction of a human hair. More recent hygrometers employ lithium chloride. As Little, Inc. sees it, the new method has some clear-cut advantages over the latter because readings can be made quicker and are independent of temperature.

This is how it works: A plastic strip, coated with carbon powder in a water-sensitive binding compound, is placed in the room to be measured and wires are attached to each end of the strip. Current passing through the wire is then a measure of the humidity since the binder absorbs water, forces the carbon particles apart. Earlier work on the instrument was done by Eastman Kodak in 1944-46.

•

Lubricator Dispenser: Cherry-Burrell Corp. (Chicago) is offering a lubricant dispenser for chain-type bottle conveyors. The unit mounts under the return conveyor chain, operates only when the conveyor moves. An "O"-ring-equipped roll, immersed in the lubricant pan, makes contact with the moving conveyor.

•

Plastic Pipe: B. F. Goodrich Co. (Akron, O.) is out with a new rigid Koroseal pipe. It's claimed to have the highest shock and impact resistance known to the plastic field. The pipe can be bent by heating it; flanges are recommended for connecting it to other pipe systems. Threaded joints can be chemical-welded for temporary installations and standard compounds can be used to seal temporary joints.

•

Immersion Heaters: General Electric (Schenectady, N.Y.) has added single- and double-flanged heaters to its Calrod immersion heater line. They're made by bending a Calrod tubular unit into a hairpin shape, then brazing the ends into a flange. A silicone seal and porcelain insulator at the terminal ends serve as a protection against vapors and liquids, also provide electrical insulation. The heaters offer a high watt density.

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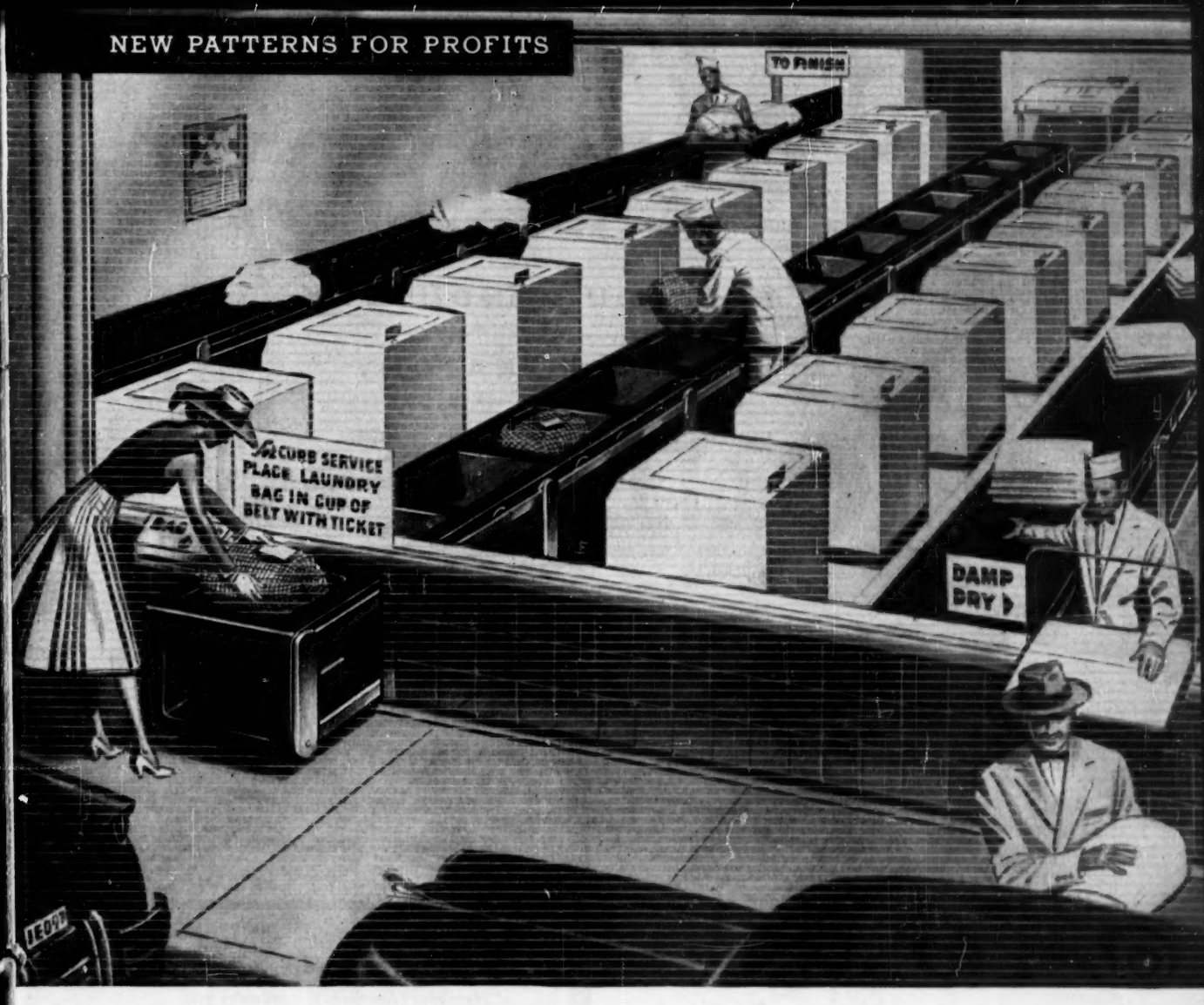

Can Synthetic Rubber Belts Help Create a Curb Service Laundry?

Tough, flexible belting of synthetic rubber can open dozens of new techniques in materials handling. A curb service laundry, for example, could use compartmented belting to convey customer-sorted and bagged clothes to washers or even directly into hot detergent solutions. The belting does not deteriorate from outdoor exposure; resists most common chemicals; is, in fact, one of the most wear-resistant of all the flexible materials known. Using compartment belts, laundry design engineers could create a close approximation to a self-service laundry.

Monsanto customers produce these "rubbery" moldable resins by copolymerizing Monsanto's styrene monomer with butadiene to make a wide variety of readily colored elastomeric compounds. These compounds are used for shoe soles and heels, luggage, floor mats and coverings, conveyor and power transmission belting.

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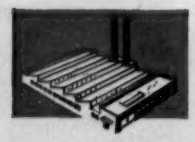

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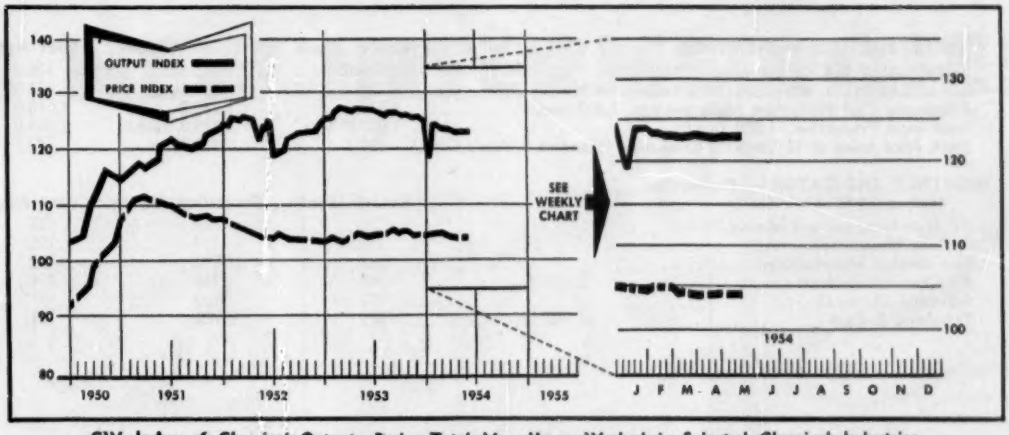
MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Cynosure of most chemical marketers eyes this week is the news from Washington during the past few days. Prime attention-getter, of course, is the latest chemical distribution study—elemental sulfur—out of the Commerce Dept's Business & Defense Services Administration.

This, the fourth in a series initiated last December, falls somewhat short of fulfilling industry's expectation of a comprehensive analysis of the sulfur situation. The pattern confines itself to elemental sulfur production and consumption, is carried only through the 1950-1952 period.

Here are the highlights, and a more detailed evaluation will appear in CW next week:

• Total elemental sulfur supply increased during the 3-year period; 1950, 5,335 thousand long tons; 1951 up to 5,466 thousands; 1952, 5,551 thousand tons.

• Consumption by all domestic sulfur outlets dropped consistently during the Korean emergency stretch ending with 1952. (That imposition of allocation controls—to equitably spread around the available sulfur—and general downslide in business were reasons behind the decreases is not explained by BDSA). Typical of the declining use is the major consumer's (sulfuric acid) take during the three years studied: 3,077 thousand tons, 3,074, and 2,925 for 1950, '51, and '52, respectively.

•

BDSA is currently working on the first of its updating projects on previously issued distribution patterns. A look at benzene (first of the series) for 1953 will be issued later this year.

Subsequent studies—depending on the accord given the benzene effort—will detail the '53 story.

•

Results of a BDSA-phosphorous oxychloride industry pow-wow in the nation's capitol last week (CW Newsletter June 26) may well be having makers studying possible adjustments to production schedules. Reason: the Army Chemical Corps. will have to sell more than 1,000 tons/month of impure oxychloride over the next two or three months.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.6	123.5	126.2
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.2	104.3	104.4
Bituminous Coal Production (daily average, 1,000 tons)	1,325.0	1,260.0	1,616.0
Steel Ingot Production (1,000 tons)	1,597.0 (est.)	1,720.0 (act.)	2,069.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	307.2	303.7	242.7

MONTHLY INDICATORS—Production (Index 1947-49=100)	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	125	123	137
Durable Mnaufactures	135	134	156
Non-durable Manufactures	117	115	123
All Chemical Products	147	146	151
Industrial Chemicals	150	150	159
Petroleum & Coal	121	122	131

That's a greater amount than the industry would normally turn out in the same period.

Chances are that producers as well as consumers will bid for the material—it could probably be used directly in production of tricresyl phosphate, though it would have to be purified for some other uses—mainly because they can't afford not to. One tank car of the material, for example, was reportedly sold at 5¢/lb., considerably under going schedules.

Since industry would not have enough suitable tanks available in time, the Army will supply the required transportation for future sales. One decision still in the works: Should sales be via sealed or negotiated bids?

This extra supply shouldn't last too long, however. The Chemical Corps is now testing a unit to convert oxychloride into trichloride, which would permit reuse. Hope: to have the facility in operation by September.

•

Sooner than that, though—by the end of this month—Solvay expects to have its spanking-new halogenated hydrocarbon plant at Moundsville, (W. Va.) onstream. Products to pour forth: methyl chloride, methylene chloride, chloroform, carbon tet.

There aren't any official figures being issued, of course, but industry speculates that the company's upcoming methylene chloride output rate will rank it as a big-time producer—perhaps as much as 15 or 20 million lbs./year.

•

The over-all chlorine market probably won't be too greatly affected by Solvay's consumption for the chlorinated products; they'll use their own output from a nearby chlorine plant.

There's been a slight improvement in chlorine movement, though, because of some seasonal business from water treatment, insecticide outlets.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending June 28, 1954

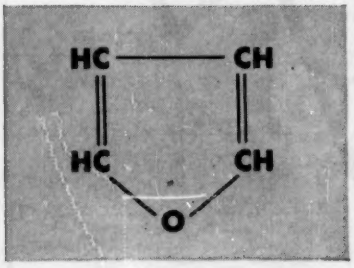
UP

	Change	New Price		Change	New Price
Linseed oil, raw, dms., c.l., N.Y.	$ .005	$ .1875	Stannic chloride, anhyd., dms., works	$ .005	$ .767
Sodium stannate, dms., works, frt. alld., E.	.005	.553	Tin, metal, Straits	.01	.95

All prices per pound unless quantity is stated.

From Du Pont . . . in tank car quantities

3 NEW INTERMEDIATES



FURAN

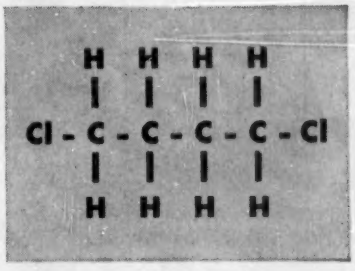
An unsaturated compound with conjugated double bonds, furan reacts much like divinyl ether and butadiene—with modifications due to its cyclic structure. Addition, substitution and ring-opening reactions can be effected. Some typical reactions of furan follow:

OXIDATION . . . . . Maleic acid
CHLORINATION . . . . Chlorofurans
NITRATION . . . . . Nitrofuran
ACYLATION . . . . . Alkyl and Aryl 2-Furyl Ketones
ACETALIZATION 2,5-Dialkoxy-2,5-Dihydrofurans
DIELS-ALDER DIENE SYNTHESIS . . . . . 3,6-Endoxytetrahydrophthalic Anhydride

PHYSICAL PROPERTIES:

Appearance . . . . . Colorless liquid
Odor . . . . . Mild, pleasant
Molecular Weight 68.07
Boiling Point at 760 mm . . . . . 31.3°C.
Specific Gravity, 20/4 . . . . . 0.937
Solubility . . . . . Insoluble in water. Miscible with most common organic solvents.

NOW AVAILABLE IN TANK CAR QUANTITIES



1,4-DICHLOROBUTANE

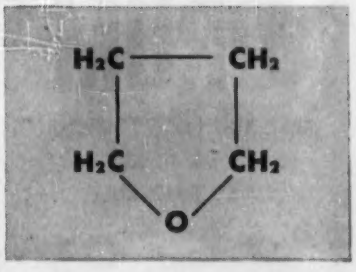
1,4-DCB, now being produced in tank car quantities, makes possible the commercial development of new organic syntheses. Either or both of the highly reactive chlorine atoms can be replaced by thiol, cyanogen, amine, alkoxy, aryloxy, and other groups. The versatility of 1,4-DCB is illustrated in the following reactions:

WITH Sodium Sulfide . . . . . Tetrahydrothiophene
WITH Ammonia . . . . . Bis-pyrrolidinium bromide
WITH Alcoholates and Phenolates . . . . . Chloroethers and Diethers
WITH Toluenesulfonamide plus hydrolysis . . . . . Pyrrolidine
WITH Sodium Cyanide . . . . . Delta-chlorovaleronitrile

PHYSICAL PROPERTIES:

Appearance . . . . . Colorless, mobile liquid
Odor . . . . . Mild, pleasant
Molecular Weight 127.02
Boiling Point at 760 mm . . . . . 155°C.
Specific Gravity, 20/4 . . . . . 1.141
Solubility . . . . . Insoluble in water. Soluble in most common organic solvents.

NOW AVAILABLE IN TANK CAR QUANTITIES



TETRAHYDROFURAN

Outstanding for its high solvent power, THF dissolves high molecular weight polyvinyl chlorides and vinylidene chloride copolymers at room temperature. It is readily miscible with other organic solvents, drying oils, and water, making it useful in the formulation of adhesives, lacquers, fabric coatings and in synthetic-fiber manufacture. As a chemical intermediate, THF reacts by substitution or ring cleavage, much like an aliphatic ether, but modified by its cyclic structure. Its ability to dissolve a wide range of non-resinous organic materials suggests its use in Grignard and sodium acetylide reactions.

PHYSICAL PROPERTIES:

Appearance . . . . . Colorless, mobile liquid
Odor . . . . . Ether-like
Molecular Weight 72.10
Freezing Point . . . . . -108.52°C.
Boiling Range . . . . . 65–67°C.
Solubility . . . . . Miscible with water and most common organic solvents.

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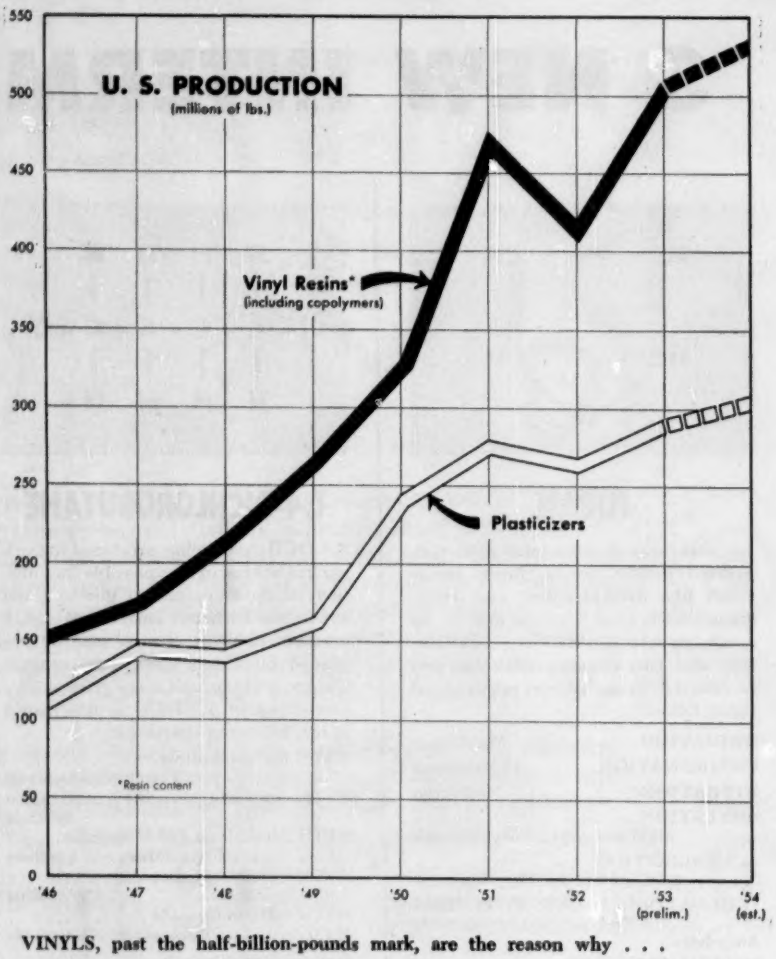

VINYLS, past the half-billion-pounds mark, are the reason why . . .

Plasticizers Top '51 Peak

Plasticizers, during the past few weeks, have been usurping front center of the chemical markets stage. And price fluctuations—official and under-the-counter—have been their principal act. (CW Market Letter, June 5) But recently released government figures are another attention-getter for the onlookers.

An annual U.S. Tariff Commission report (one in a series giving preliminary statistics on U.S. production and sales of synthetic organic chemicals), however, does little more than give official confirmation to a widespread industry observation: plasticizer output and sales last year not only were substantially better than 1952 volumes, but also top the previous all-time highs chalked up in 1951 *(see chart)*.

Production in 1953 amounted to some 293 million lbs. compared with 1952's 268 million and the 280 million lbs. reported in the peak year before.

Actually, '53 output would have edged farther ahead—by about 17 million lbs.—but for a Tariff Commission switch in reporting certain lauric, oleic, and stearic esters. These particular esters, classified as plasticizers in 1952, will this year be reported as surface-active agents. Reason is elementary: changes in major use in recent years.

Even with the subtraction, though, about 83 million dollars' worth of all plasticizers changed hands last year—some 235 million lbs. is the tally.

The output of cyclic plasticizers (consisting principally of esters of phosphoric acid and phthalic anhydride) in '53 totaled 224 million lbs. for a 30-million-lbs. increase over

'52's 194 million. Sales were better by some 35 million lbs. The score: 1953, 180 million lbs., valued at $60 million; 1952, 145 million lbs., at $51 million.

Rundown of the acyclic group (for the most part, esters of adipic, oleic, phosphoric and stearic acids), also points up the multimillion-pound and dollar aspects of the plasticizer industry. Production last year amounted to 69 million lbs., of which some 55 million lbs. hit the market. Value of the sales is pegged at $23 million.

Vinyl Apron Strings: Bulk of the plasticizers made and sold in the U.S.—perhaps 60-70%—wind up in vinyl resins and vinyl copolymers. Demand for plasticized vinyl resins (including all groups) has sparked production from a moderate 150 million lbs. year in the immediate post-World War II period to a hefty 1953 total of about 511 million. And this year's turnout, though rising at a slower rate, may notch up another 25 million lbs. over '53's output.

Even that may be a conservative estimate. Although vinyl film and sheeting items seem to have eased off, other groups of vinyl products such as floor covering, coated fabrics and inflatables continue to grow rapidly.

Take vinyl floor coverings, for instance. After years-long persistence, vinyl flooring is at last catching on. Last year some 25 million lbs. were laid on U.S. floors—that's double the 1952 volume. And some prognosticators envision vinyls cornering at least 20% of the better-than-$400-million flooring market within the next couple of years. Producers' estimates for the more distant future get rosier; one is convinced the floor covering outlet will be consuming vinyl resins at a rate of about 65-75 million lbs. /year before another half-decade is up.

Coated fabric, too, is expected to continue its vinyls take. During 1953 consumption pushed ahead of the previous year by about 12 million lbs.; at the moment vinyl-coated fabrics are crowding the 50-million-lbs./year mark.

No Dearth of Suppliers: Plasticizers, briefly, increase the plasticity of a mass; are used with plastic compounds and surface coatings to extend or modify the natural properties of the resins, and to develop new, improved properties not available through the resins themselves.

Growth of basic resins, such as the vinyl type, has skyrocketed requirements for a multitude of plasticizing

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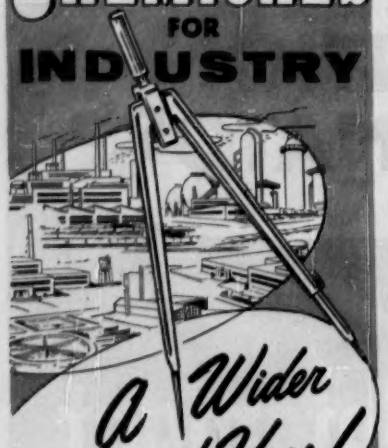

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agents, as well as harping a siren song to an impressive host of producers. More than 30 manufacturers now supply over 100 different plasticizers to the vinyl plastics industry alone.

Of the several groups into which plasticizers have been categorized (phthalates, phosphates, low-temperature, etc.), phthalates are far and away the most widely used. Reason: they provide the best average of general properties sought in plasticizers and are relatively economically priced.

(Last year, for example, this one group accounted for more than 56% of all the plasticizers produced in the U.S. or about 165 million lbs. And, in turn, the dioctyl phthalates,* 84.8 million lbs., made up about half that total.)

DOP has been of late, the prime troublemaker in plasticizer pricing. As of now, however, fewer instances of shading are evident, which may well indicate that the plasticizer market, now heading toward still higher production peaks, may soon be moving onto a price plateau.

* Includes di (2-ethylhexyl), di-n-octyl, di-iso-octyl phthalates and mixtures, plus octyl decyl phthalate.

Saline Foundation

OFTEN OVERSHADOWED by the plethora of organic chemical developments is the fact that salt is a prime underpinning to the entire chemical process industries. A brief look at today's sodium chloride picture points up this importance.

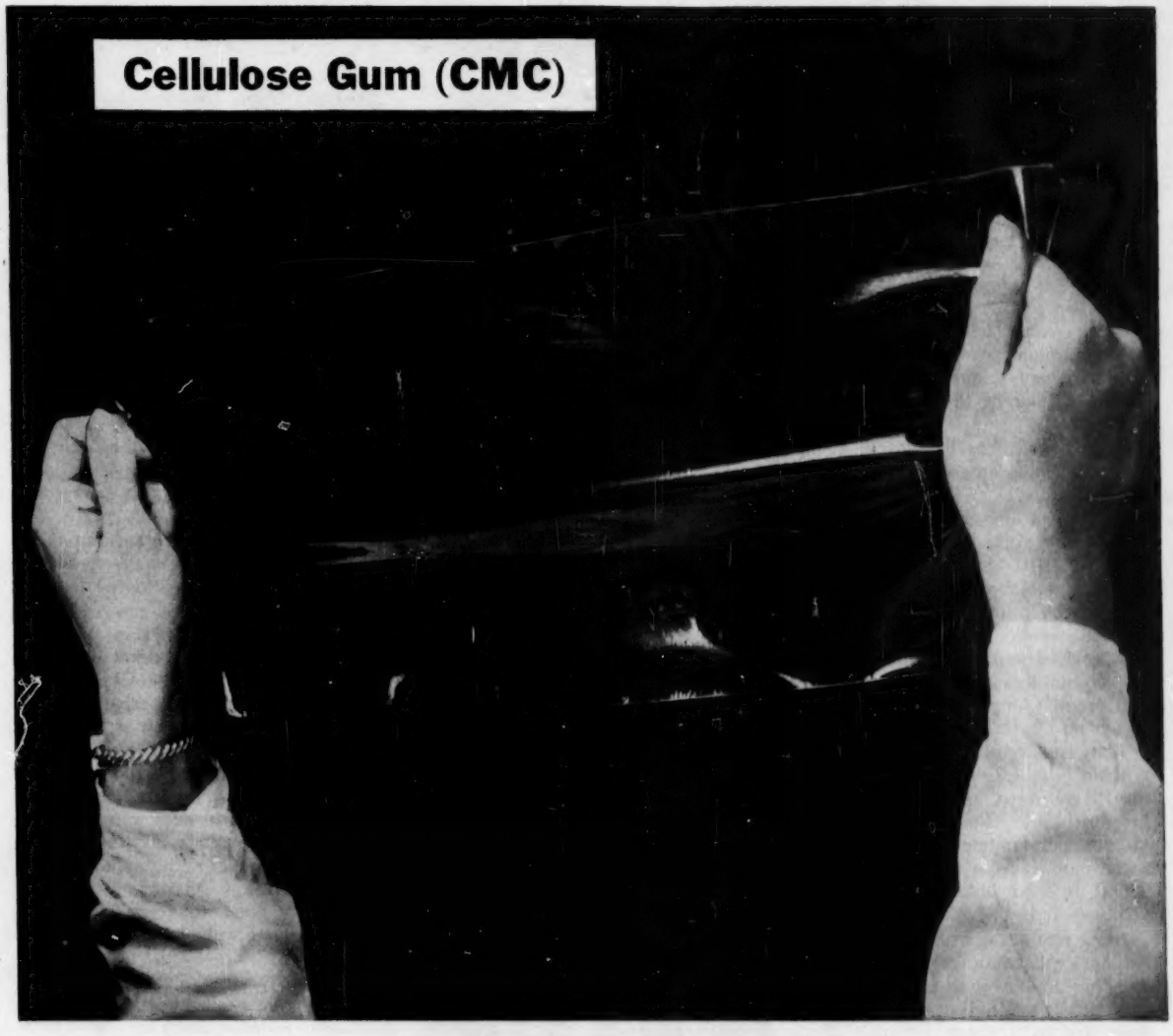
The chemical, petrochemical and petroleum industries now take nearly 70% of total domestic salt output, or over 15 million tons of the approximately 20 million tons of salt now being produced in the U.S. (Current production rate—with salt brine accounting for some 58%, rock salt about 23% (*see cut*), and evaporated 19%—is about 2½ times the pre-World War II peak.)

No Mere Sprinkling: Evidence, too, that salt is more than flavoring is the almost miniscule amount—scarcely 3%, or about 575,000 tons—that is consumed at U.S. tables and in other household uses.

Compare that with these estimated annual chemical consumptions of salt: soda ash (8 million tons); chlorine, bleaches, chlorates, etc. (5.5 million tons); water treatment (700,000 tons); and about 1.3 million tons to other CPI outlets.

Farms, too, are big salt-takers, with almost 1 million tons being consumed by livestock and another 122,000 going to other agricultural and general farm uses.

Railroads and highways—for road improvements, dust and ice control—probably scoop up some 800,000 tons/year, while meat packing, canning, preserving and other food processing take an additional 2.3 million tons/year.



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Protection Ups Its Price

At a time when the chemical industry is filing more patent applications than ever before, the time it takes to process an application is getting longer. It's a deplorable situation. But a just-completed CW survey underscores this plain fact: there's nothing wrong with the Patent Office that money won't cure.

And the way things are headed this means a hike in the cost of patent services.

Here's what the Patent Office figures show on rate of processing applications:

- There were some 30,693 chemical patent applications pending on May 30, 1,101 more than were awaiting action four months earlier.
- In the same four-month period, the time needed by examiners to act on a revised application stretched out to 11 months and 16 days—almost two months longer than it took them to act on applications on Jan. 30.
- Since three or four "actions" (involving clarification of claims, revising of language, amendments by the inventor) are usually required, it takes approximately three years and seven months from the day an application is filed before the patent is finally issued.

Right now a total of about 111,000 patent applications of all kinds are awaiting action by an examiner. Several other patent categories, moreover, are in a worse situation than chemicals, requiring almost a year for examiners to take action on them.

Patent attorneys have been complaining about this problem for years. Their grumblings have not fallen on deaf ears.

Patent Commissioner Robert Watson, like his predecessors, wages a constant battle for more examiners to speed up the office's operation. But despite the obvious importance of the work to the country's technical progress, additional money doesn't come easily either from the President's Bureau of the Budget—which has first crack at the agency's request for funds—or from Congress itself.

Patent officials estimate that if they had about $15 million/year for the next six years, they could really bring patent processing time down to a fairly respectable limit—i.e., getting "an action" on the average patent within three months. If you assume an applicant takes about the same time to make each revision, this could bring average patent procurement time down to around 18 months.

But there's no sign that any such additional funds are forthcoming from Congress. The President's budget called for a meager $11 million on this item for the year beginning July 1. The House accepted this, but the Senate voted for $12 million, about what the Patent Office spent this year.

Assuming the budget *status quo* is maintained, the prospect is for a continual slowing down of the time it takes to get things done.

Best hope for betterment is in the move to charge the patent applicant more of the cost of running the office—an idea that the Republicans are pushing for all regulatory and service agencies of the government.

PATENT OFFICE'S WATSON: On the losing end of a battle for funds.

Right now Patent Office income from fees is about 45% of its expenditures. The charge is now $30 to file an application, $30 more for final issuance of the patent. In addition, applicants are charged $1 for each additional claim over 20.

The fee schedules proposed to the Bureau of the Budget (which must give its approval to any Executive department legislative request) would bring total income from fees to about 75% of the office's total expenditures.

New fees, under this proposal, would run about like this. On filing, an inventor would pay $40 instead of $30. He would also be charged $5 for every claim over five in his application. Upon issuance, he would pay $50 (instead of $30) plus another $5 for each claim over five that was allowed.

There is a good deal of support for fee increases from such organizations as the Patent Law Assn. and the patent section of the American Bar Assn. Inventors and companies, too, realize that such an increase will not significantly raise their costs, since actual office fees are usually a minor part of over-all costs of getting a patent.

At present, the fee bill has not received final approval from the Budget Bureau, and there's a chance that this may not be forthcoming in time for submission to Congress this year.

There's every chance that the bill would receive Congressional approval, though, if it does get into the legislative mill.

If and when the boost in fees is enacted, patent officials think they've got a chance to increase their total budget—that they can perhaps persuade Congress not to reduce the appropriation by the additional amount gained from added fees.

One other possibility for speeding things up is the use of a punch-card system for patent classification and searching. But patent officials are split as to the wisdom of such a move. Some feel that eventually such a mechanical or electronic system will be forced on the office by the sheer proliferation of technology; others say that mechanical classification is not adaptable to most fields.

Both sides agree that chemical applications could be easily adapted to such a process. Moreover, in a 1950 small-scale test of punch-card searching, results were much faster coming and equal in quality to those obtained by searching.

There seems to be little doubt that eventually the Patent Office will convert at least a part of its clerical operations to mechanical methods. And especially where literature searching and storing is involved is the trend strongly toward machines. Some of the newer models and those still under development make it mighty hard to overlook drastic savings in time, space and salaries resulting from their use.

Thus far, however, there's nothing definite on this score. Again, any decision on this is a long way off. The whole idea is still being studied.

This is of little consolation to those who are convinced that action, not study, is now long overdue.

Quick Comeback

In the brief span of less than two years, neomycin went from "highly promising" to "has been." That the antibiotic (which most of the pharmaceutical industry gave up on in 1950 as too toxic) is now barreling down the comeback trail is evident from the recent entry of Chas. Pfizer into bulk production, the appearance of a brood of new neomycin ethical preparations.

The resurgence is a tribute to the tenacity of a few who kept on with their neomycin researches even after the original high hopes for the material had been thoroughly deflated.

In the forefront of those who did not give up are the research people of Upjohn Co. (Kalamazoo, Mich.). When it became clear that the antibiotic—isolated in 1949 by Rutgers' Waksman—was too toxic to be an effective antituberculosis agent, many researchers and at least one prominent company rapidly lost interest.

Upjohn, among others, realistically altered the course of its development efforts, veered in the direction of topical applications. In 1951 this paid off for the company with a neomycin ointment that was rated the "drug of choice" in countering certain skin infections. The following year, doctors found that in tablet form neomycin was not absorbed into the intestine, therefore provided antisepsis there.

Predicated on these discoveries, a number of companies began to blueprint neomycin plans. On the production side, the field was for several years limited to Upjohn, Heyden and S. B. Penick. Since the acquisition of Heyden's antibiotic interests by American Cyanamid (*CW, Nov. 14, '53*), the latter has been in the business. Now add Pfizer and you have the entire production picture.

With the exception of Upjohn, all of the above named firms offer neomycin in bulk to drug houses; Upjohn's output is for captive purposes.

The flurry of new neomycin products on the drug market is perhaps the best gauge of the antibiotic's recent gain.

Within the past several weeks, Abbott Laboratories, Burroughs Wellcome, Sharp and Dohme and Pitman-Moore, all have launched topical combinations of neomycin and such other antibiotics as bacitracin, erythromycin, polymixin. In the near future, Lederle plans to bring out a combination of neomycin and achromycin for intestinal sterilization.

Although it may never justify the

Don't MISS—

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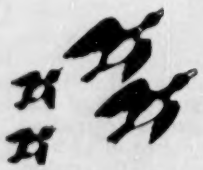

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enthusiasm of those who were shooting for a highly potent new anti-TB weapon, neomycin is more than repaying the persistence of those who kept faith in its ultimate therapeutic value.

Chemical Keys

Two new chemical research developments of fundamental importance could be keys to more tangible future rewards.

• Out on the West Coast, Stanford University chemists Homer Williams* and Harry Mosher have devised a new and practical synthesis for pure n-alkyl hydroperoxides from n-propyl to n-decyl. Crux of the new technique is the use of n-alkyl methanesulfonates as alkylating agents for hydrogen peroxide. By the room-temperature reaction of alkyl methanesulfonates with 30% hydrogen peroxide in aqueous methanol, Williams and Mosher obtain, what they say are "acceptable yields" of alkyl hydroperoxides.

The Williams-Mosher method is significant in that it opens a wide new

* Now with Shell Chemical.

Smoking Data

CALMLY PUFFING their pipes, Yale statisticians Cuyler Hammond (*left*) and Daniel Horn (*center*) face the press following the disclosure last week of their bold preliminary findings on the relationship between smoking and the life span. Working under American Cancer Society sponsorship, the pair found, in a 2½-year study of 187,766 men between 50 and 70, that cigarette smokers had a death rate from all diseases as much as 75% higher than noncigarette users. Heart disorders and cancer of the lung appear to be the worst offenders in this connection. Comparable fig-

road to an interesting and potentially valuable class of chemicals. Previously obtainable only up to the butyl homolog by a sensitive, low-yield synthesis, the n-alkyl hydroperoxides now are readily available as analytically pure materials that show the same order of stability as t-butyl hydroperoxide.

Sponsored by California Research Corp., the Stanford study is drawing interest on two counts: the new alkyl hydroperoxides will tie in with gasoline-burning investigations, should boost fundamental studies on the mechanism of combustion and air oxidations; also worth noting is their close kinship to compounds that are of considerable importance as polymerization catalysts and diesel fuel additives.

• A quintet of Du Pont chemists in the meantime spotlight a brand-new group of polymers. They're products of the copolymerization of ethylene with carbon monoxide in alcohol. Polyketones in their nature, the novel materials were found to contain alkoxyl groups resulting from the incorporation of alcohol molecules.

Purely of a fundamental character,

Draw Fire

ures could not be established for pipe and cigar smokers. Reaction to the dramatic statistical revelations was rapid, brought forth criticism of Hammond and Horn's data and judgment (for releasing data before the study is completed); no responsible scientist, however, completely discounted the study's validity. No one can yet say for sure just what effect the disclosures may have on cigarette consumption. But tobacco men were more than a little uneasy as cigarette company stocks dipped from two to four points during the morning of the day after the disclosures.

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Du Pont work—carried out by Experimental Station researchers Cairns, Coffman, Cramer, Larchar and McKusick—could conceivably lay the foundation for a new class of commercially important polymer materials.

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Chemical Adds: Newly available in research and pilot-plant quantities are potassium phthalimide, diphenylacetyl chloride, N-methylanthranilic acid, and p-bromoanisole from Spatz Chemicals, Inc. (Sioux City, Iowa). They are aimed at pharmaceutical, perfume, and flavor manufacturers.

•

Pipette Cleaner: An offering by E. Machlett & Son (New York), a new automatic pipette washer, is claimed to remove clinging whole blood or serum in a matter of minutes. Named VirTis, the new apparatus was developed by bacteriologists L. R. Christenson and Colin MacLeod of New York University's college of medicine. The standard model cleans 200 pipettes per washing cycle, or up to 10,000/day.

•

Analytical Aid: For quantitative and qualitative analysis of materials exhibiting electromigrating characteristics, Labtine, Inc. (Chicago) is offering its new Electrograf electrophoresis apparatus. Claims for the device: low cost and ease of operation. It was developed by E. Philip Halpern, formerly biochemist at the Albert Einstein Medical Center.

•

Novel Rubbers: Now being field-tested is a new urethane-type rubber developed by Du Pont. Trademarked Adiprene B, the product is said to possess excellent abrasion resistance, high tensile strength, and resistance to oxygen and ozone degradation. Stemming from isocyanate studies, Adiprene B is the result of considerable basic research, milestoned by several pertinent Du Pont patents.

Samples of the new rubber will not be available for evaluation until completion of Du Pont's development and

Time and Error Saver

SURROUNDED by automatic recording equipment, the young woman shown above is on the receiving end of a valuable new analytic instrument—Perkin-Elmer's (Norwalk, Conn.) multicomponent infrared analyzer. Developed in conjunction with Ethyl Corp., which will install it in the company's Baton Rouge, La., laboratories, the instrument is reported to analyze automatically up to 10 components of a sample in 10 minutes. Results are presented instantaneously by an electric typewriter, or on punched cards. Analysis time, boasts Perkin-Elmer, is shortened by nearly 50% over ordinary manual spectrometer analyses and chances of error are reduced.

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New Labs: American Enka Corp. (Enka, N.C.) has begun construction of a research building near its Enka, N.C., rayon plant. Prime activity of the new center will be synthetic polymer research for the development and improvement of new textile materials. Present research facilities will continue to be used for viscose studies. Authorized expenditure for the new lab is $1,130,000; estimated completion time, 18 months.

• Du Pont's experimental station (Wilmington, Del.) will be further expanded by a new research laboratory for the company's film department. Scheduled for completion by the end of 1955, the new facility will cost $1,275,000, augment film research now being done at the company's Buffalo (N.Y.) laboratory. The latter is expected to continue as a major research operation.

•

Color Combination: Speedy, simple operation is claimed for Bausch & Lomb's new combination colorimeter-spectrophotometer. Called the Spectronic 20, the instrument is said to produce high wave-length accuracy and spectral purity through use of a diffraction grating. Only two control knobs are used in making routine colorimetric analyses.

•

Private Reactor: A privately financed nuclear reactor, slated solely for education and nonsecret research in peacetime applications of nuclear power, will be built at the Massachusetts Institute of Technology, according to MIT President James Killian, Jr. Estimated cost of the reactor plus a special laboratory to house it: about $1 million. Reason for the project, according to Killian, is the steadily increasing importance of nuclear technology to the nation and in particular to New England where there is no reactor at present. He is optimistic that the new atomic pile will be the forerunner of a power reactor in the New England region.

•

Mellon Statistics: Mellon Institute (Pittsburgh) spent $4,375,712 for pure and applied research during the fiscal year ending March 1, '54. The institute's six research departments (chemical physics, physical chemistry, physical measurements, instrumentation, organic chemistry, analytical chemistry) and 11 individual fellowships accounted for $1,117,934 spent on originative investigations in pure science.

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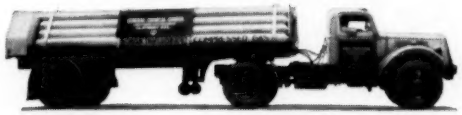

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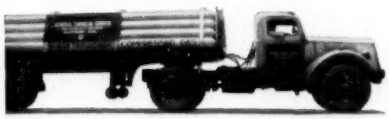

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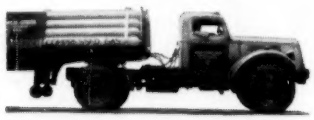

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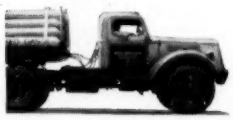

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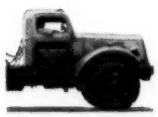

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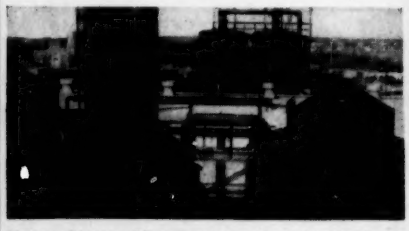

PERTH AMBOY, NEW JERSEY—Asphaltic Products

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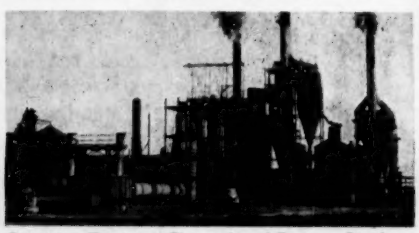
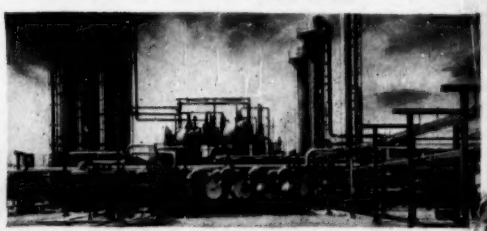
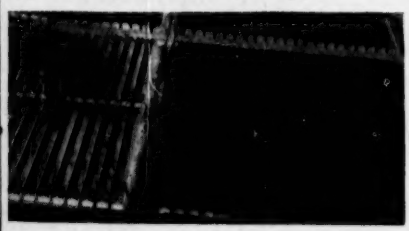
WESTLAKE, LOUISIANA—Furnace Black



SUNRAY, TEXAS—Channel and Furnace Blacks



WITCO, TEXAS—Channel Black, Hydrocarbons



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